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ORIGINAL LECTURES.

CASES ILLUSTRATIVE OF THE EFFICIENCY AND NON-EFFICIENCY OF DIGITALIS IN THE TREATMENT OF DIFFERENT STAGES OF VALVULAR DISEASES.

A Clinical Lecture,
delivered at the Philadelphia Hospital.

BY FREDERICK P. HENRY, M.D.,
VISITING PHYSICIAN TO THE HOSPITAL, ETC.

[Reported by W. A. NEWMAN DORLAND, M.D.]

GENTLEMEN: This patient is, as you see, a colored man about sixty years of age, who when admitted complained of intense dyspnœa, amounting to orthopnœa, in addition to which there were great feebleness and irregularity of the pulse, slight œdema about the ankles and legs, and some ascites—in fact, a general anasarca. At the time of his admission to the hospital, on November 18th, I could almost bury my fingers in the skin of the chest, so great was the œdema. This has now disappeared not only from this point, but also from the legs. Besides these symptoms there were signs of pulmonary congestion. The cause of this alarming array of symptoms was evident. There was no difficulty in detecting a systolic murmur over the mitral region, which was transmitted to the left so as to be heard at the anterior border of the latissimus dorsi muscle of that side. The time of its occurrence, the area of greatest intensity, and the direction of transmission indicated mitral insufficiency, with a certain amount of regurgitation into the left auricle and interference with the pulmonary circulation. The veins of the pulmonary system are destitute of valves and pursue a remarkably straight course, and hence in case of disease this anatomical peculiarity becomes a disastrous feature.

The symptoms in this case came on suddenly, although the lesion on which they depended was an old one. Whenever we are called upon to take charge of a case of acute disease, we should ascertain whether the attack originated *de novo* or whether it has for its foundation some chronic organic defect. It is unnecessary to mention how prognosis and treatment will vary according to the results obtained from such an examination.

This man tells us that on the day before his admission he was whitewashing a damp, cool cellar. Indeed, it was more than damp, for his feet and legs were immersed in cold water. There has been nothing inflammatory in the nature of his attack, as is indicated by his temperature-chart, which shows a curve persistently subnormal, with the exception that twice it exceeded the normal point and twice it reached the normal. Normally an antagonism exists between the venous and arterial circulations, the maintenance of which is essential to health. In disease this antagonism is destroyed. In this case the arteries gave up the struggle, their tension relaxed, and the whole circulation became of a venous type, as shown by the œdema and other symptoms.

The object of treatment, then, was to restore arterial tension, and this was done by the use of digitalis, which is still the best of the many cardiac tonics.

To-day I propose to say a few words concerning the action of this drug, illustrating my remarks by facts in the clinical history of this case. Results thus obtained are worth more than those obtained from dozens of experiments upon animals. So-called experimental therapeutics has often nothing to do with clinical therapeutics. To illustrate this point, the other day a friend of mine told me of his ineffectual attempts to kill a superannuated horse by prussic acid, and in a paper recently read before the College of Physicians a number of experiments were reported, one of which consisted in injecting beneath the skin of a dog, weighing fifteen pounds, thirty grains of quinine, equivalent in a man weighing two hundred pounds, to four hundred grains —a dose entirely impracticable. I hold that a clinical study of the action of drugs is more instructive than any number of experiments upon animals.

In a study of the present case, in the first place I would emphasize the fact that these symptoms arose suddenly and followed exposure to cold and wet, and that they promptly yielded to the administration of digitalis. This indicates that there are many healthy muscular fibres in the man's heart. Otherwise the digitalis would have had no effect on his condition, the first requisite to the successful action of the drug being the presence of healthy fibres in the heart. Are there any methods by which we may judge of the degree of degeneration to which the cardiac muscle has advanced? There are. In the first place, we are justified in inferring the presence of a certain amount of healthy muscular fibres if the first sound is relatively louder and more prolonged than the second. This opinion is corroborated if the apex-beat is clearly defined. Again, a distinct murmur can only be produced by a heart acting with considerable force. A faint murmur associated with other symptoms of cardiac failure is, therefore, more serious than a loud one. In such cases digitalis is indicated.

Another indication for the employment of digitalis, an indication distinctly present in this case, is a feeble, rapid, and irregular pulse. Attention was called to this by Withering, the first systematic writer on the use of the drug. Withering noticed that digitalis is much more efficient when the pulse is weak and feeble than when it is hard and regular. We also find a further indication for its employment in diminution of the urinary secretion, which was a very marked symp-

tom in this case, only 15 ounces of urine being passed in the first twenty-four hours after his admission. It subsequently increased to 33 ounces, 137 ounces, 89 ounces, and so on. There was a very slight amount of albumin in his urine, and this fact, taken in connection with the absence of casts, tends to exclude Bright's disease.

With reference to the action of digitalis in heart disease, we may divide the heart's action into three stages: the first, or stage of *eusystole*, when compensation is well maintained, and it is unnecessary to give digitalis; in fact, under such circumstances, the drug is useless and may even be injurious. Shortly after this stage the symptoms may change, and the second stage, that of *hypersystole*, follows. In this the heart is endeavoring to overcome the valvular defect, and in doing so is exhausting itself. It is making a greater effort than is necessary, and is becoming hypertrophied, as evinced by displacement of the apex-beat. There may be at this stage a sensation of fulness in the head, tinnitus aurium and insomnia. Here digitalis is decidedly injurious. The third stage of cardiac disease is a condition of *hyposystole*. This begins with dyspnœa on slight exertion, or even during ordinary conversation, a sure sign that the circulation is approaching the venous type.

A division of the heart's action into these three stages explains certain discrepancies of opinion with reference to the use of digitalis in cardiac disease. Thus Grisolle has stated that digitalis is contra-indicated in all forms of stenosis; while, on the other hand, Lelion, another Frenchman, maintained in his inaugural thesis exactly the reverse, viz., that digitalis was indicated in all cases of aortic stenosis. In 1877, Milner Fothergill, in a paper published in the *British Medical Journal*, adopted a view similar to that of Lelion, so far as aortic stenosis is concerned. In aortic stenosis, he says: "By exciting ventricular contraction more blood is enabled to be passed in a certain time, and thus equilibrium is maintained." Niemeyer, however, took an opposite view of this question. The same discrepancies exist in regard to stenosis of the mitral valve. Niemeyer recommended its use in this condition; while, on the other hand, Potain says that in mitral stenosis digitalis may be long dispensed with. Finally, Gubler has declared it to be entirely useless in lesions of the mitral valve, whether stenotic or regurgitant.

Can these statements be reconciled, and, if so, in what manner? Certainly not by impeaching the testimony of these men who were authorities in their time. By considering the different stages in which the drug was administered we can arrive at an exact result. Hence the division of cardiac disease into three stages: in the first of which digitalis is useless and may be injurious; in the second it is injurious, and in the third it is invariably beneficial if the degeneration of the muscular fibres has not proceeded too far.

Some valvular lesions are more benign than others. Thus, mitral stenosis is the least dangerous, according to Austin Flint, while others assert that mitral regurgitation is the most benign. According to all, sudden death is more apt to occur in aortic regurgitation than in any other form of heart disease, and some go so far as to say that it is the only form that is likely to terminate in sudden death. Cardiac lesions may exist for many years with no symptoms, the patient dying of another affection. In these cases digitalis is not required. The indication for the employment of digitalis depends upon the condition of functional activity of the cardiac muscle. If it is able to perform its function, digitalis is useless. On the other hand, if the heart is acting with unnecessary strength, to overcome the effects of the lesion, use drugs such as the bromides, morphine, and aconite, associated with a bland diet, in which the only animal ingredients are milk and eggs. In the stage of hyposystole some one of the many preparations of digitalis may be employed. In the case under consideration we gave two drachms of the infusion every three hours, until the urine was very decidedly increased in amount, the pulse strong and regular, and the dyspnœa had entirely disappeared. In prescribing digitalis do not be disappointed if you do not obtain immediate results. In this case the urinary secretion was not decidedly increased till forty-eight hours after his admission, when it rose to considerably more than one hundred ounces. We then stopped the digitalis and administered caffeine to maintain diuresis.

There are certain points connected with the action of this drug which by the inexperienced are at times thought to be the effects of the disease itself. For example, it sometimes renders the pulse very unstable, as in this case, in which slight exertion made it rapidly rise to a high point. Consequently the best effects of the drug are secured by keeping the patient quiet, not allowing him to sit up until the equilibrium is properly restored. When giving digitalis, compare the radial pulse with the cardiac beat. You will often notice that the latter is more rapid than the former. The heart is not strong enough to give rise to a beat at the wrist with every contraction, and sometimes this disproportion increases to two to one. This is supposed by some to be due to a separate contraction of the two ventricles. I reported a case in 1881 in which I think this condition existed. The sphygmogram showed two beats of the heart to one of the pulse, with a tracing which was taken over the heart.

The relative size of the two beats is what one would expect from the relative strength of the two ventricles. When we consider the arrangement of the cardiac muscular fibres, it seems almost impossible to have the ventricles acting asynchronously, but these cases show its possibility. This action of the heart has been attributed to the effects of digitalis, but the question is an open one. There is, however, a condition undoubtedly due to the action of digitalis. This is an irregularity of the heart called "*pulsus bigeminus*," two beats of the heart followed by a long pause, a condition which may continue for hours.

In this case the action of digitalis has been markedly successful. The patient has still signs of bronchitis, but there is no pulmonary œdema and no orthopnœa. The heart is acting with regularity, the murmur is present and stronger than on admission—a good sign. The urine is increased in amount and the appetite is good. Failure of appetite and other signs of digestive disorder are always present in the stage of failing compensation, so much so that "*cardiac dyspepsia*" is now recognized as a distinct morbid condition.

I now show you a case in which digitalis has been of

no use whatever, and in which we were obliged to abandon the administration. The patient is a white man, sixty years old, a native of Ireland, who was admitted April 21, 1890. When I first saw him he had pain in his chest, and on examination I found a murmur in the second interspace at the right border of the sternum, synchronous with the systole of the heart, and propagated along the arteries of the neck. There was no regurgitant murmur. If the semilunar valves are contracted you will find a murmur not only in the systole, but also a regurgitant murmur, that is, a "see-saw" murmur. If the murmur is systolic alone, with no trace of regurgitation, you will find the lesion in the aorta itself, as a rule, above the valve. In this case we have all the symptoms of angina pectoris, except that they do not occur in paroxysms. The pain radiates from the heart involving the right side as well as the left. It is a subacute or chronic case of angina. The condition of the heart was that of hypersystole—great force and rapidity of action, with a pulse of 100 per minute. Digitalis was doing no good or was actually injurious. We stopped its use and gave the patient one-eighth of a grain of sulphate of morphine, every three hours. He improved greatly under this. The other points in the case are of no special interest beyond a great tenderness of the liver from venous congestion. I would like you to bear these two cases in mind, as showing the different effects of digitalis under different circumstances.

ORIGINAL ARTICLES.

TYPHLITIS, PERITYPHLITIS, AND ALLIED AFFECTIONS, WITH SPECIAL REFERENCE TO TREATMENT.

BY W. T. DODGE, M.D.,
SURGEON TO MERCY HOSPITAL, BIG RAPIDS, MICHIGAN.

TYPHLITIS is defined as "an inflammation of the cæcal region; perityphlitis as a morbid process commencing in the connective tissue surrounding the cæcum; and appendicitis as an inflammation of the vermiform appendix."[1]

Numerous differential diagnostic signs are pointed out by authorities, the most practical being those described as follows by Fitz:[2]

"The occurrence of three important symptoms, localized pain, fever, and circumscribed swelling in well-defined order indicate appendicitis. Prolonged constipation, late-appearing fever, pain of long duration, and doughy character of the tumor occupying the lumbar region indicate fæcal cæcitis. Constipation, early tympanites, retention of flatus, fever appearing late are symptoms of intestinal obstruction."

In practice the most expert diagnostician will often find it impossible to make a differential diagnosis. As will be seen in the cases reported in this paper, all the varieties of disease of the cæcal region are represented by a very similar array of symptoms, the more acute symptoms occurring in the case of perforating appendicitis with subsequent general peritonitis: and this is the point of most value to the attending physician. When the symptoms are acute and violent, and are not speedily relieved by a movement of the bowels, no time should be wasted, but an abdominal section should be immediately performed.

The cause of inflammation in the cæcal region is usually an accumulation of hardened fæces in the cæcum or ascending colon, or the entrance of some foreign body into the appendix.

The majority of cases that result in suppuration have their origin in the appendix. The attack is usually preceded by constipation and may come on with a chill.

There are always pain in the abdomen, referred particularly to the cæcal region, tympanites, general abdominal tenderness, but more marked in the right side, dulness on percussion over the right iliac region and sooner or later the development of a distinct tumor which can generally be recognized earlier by rectal examination than through the abdominal wall.

The important practical question that confronts the practitioner when he sees one of these cases is, in my opinion, whether pus has formed, or whether the symptoms are entirely due to the presence of hardened fæcal masses in the large intestine, which condition I believe to be usually the first stage of cæcal abscess.

In many instances, cases that present most grave symptoms, with every appearance of pus-formation, will rapidly recover when free fæcal evacuations have been obtained. In all cases in which the indications for immediate operative interference are not imperative, an attempt should be made to open the bowels at once, and I have found nothing so effectual for this purpose as the administration of full doses of sulphate of magnesium. I am in the habit of placing such cases upon tablespoonful doses of this salt given every three hours until fæcal evacuations are obtained unless the exhibition should be followed by increased pain. It is, also, a good plan to give large enemata of warm water.

Most writers are opposed to giving purgatives when symptoms of acute inflammation are present, but I have never seen ill effects from them, and have on several occasions been deprived of an opportunity to operate by the administration of a few doses of Epsom salts.

The patient should be relieved from excessive pain by the administration of opiates, soothing poultices should be placed upon the abdomen, and the diet restricted to liquids.

When free fæcal evacuations are not followed by improvement in the symptoms, or when it is found impossible to open the bowels, lateral abdominal

[1] Tiffany, in Reference Handbook of the Medical Sciences.
[2] American Journal of the Medical Sciences, October, 1886.

section should be performed without delay. If general peritonitis has developed, median section may be done, but under other circumstances the incision should be over the prominence of the tumor. A free incision should be made and the parts thoroughly examined. After opening the peritoneum, if doubt is entertained concerning the location of the abscess, a hypodermic needle may be inserted, and when pus is found the patient should be turned on his side, an incision made, a drainage-tube inserted, and the cavity thoroughly irrigated with boiled water. The walls of the abscess should be stitched to the parietal peritoneum, after which the abdominal wound should be closed around the tube.

The pus may be so thick that it will not pass through a hypodermic needle, and for that reason I am opposed to exploration before opening the abdomen.

The seat of the abscess should be carefully examined and if the inflammation originated in the appendix the latter should be ligatured and cut off. If rupture of any portion of the intestine is discovered, close it by means of Lembert sutures.

In some cases in which rupture into the peritoneal cavity has occurred it may be necessary to make median and lateral openings through the abdominal walls in order to break up the pockets and wash out all the pus. When the peritoneum has not been contaminated the cavity should not be washed out. The after-treatment consists in daily irrigations of the abscess-cavity, concentrated liquid nourishment, and general supporting measures. I append the histories of a few cases which well illustrate these procedures:

CASE I. *Perforating appendicitis; general peritonitis; death.*[1]—Male, aged twenty-five years. On September 26, 1882, while working in the field, he was taken with pain in the abdomen. I saw him on September 29th, and found that he had taken a purgative, which had produced free passages from the bowels but had not relieved his symptoms. He had but little fever, and at no time during his illness was the temperature higher than 102°. It was normal most of the time, particularly toward the end of the case, when general suppurative peritonitis existed. There was much tenderness in the right inguinal region, which soon extended over the entire abdomen.

On October 2d, after consultation, exploration was made with a hypodermic needle and pus obtained. An opening about two inches long was made through the skin, parallel with Poupart's ligament. The deeper tissues were divided on a director until the neighborhood of the peritoneum was reached, when the needle was again introduced and pus obtained. A small opening at the side of the needle was then made with a knife. A small amount of foul-smelling pus escaped. A drainage-tube was inserted and irrigation practised, but no improvement occurred and death resulted on October 7th.

Autopsy: Permission to hold a partial autopsy was obtained. General peritonitis was found, the abdomen being full of pus. A mass of hardened fæces occupied a rupture in the inflamed appendix.

This case occurred in the early days of my professional career, when I entertained more dread than at present of opening the abdomen. I should have made a larger incision through the peritoneum, washed out the cavity thoroughly, and ascertained the condition of the parts by direct examination. Then the ruptured appendix should have been removed and the abdominal cavity thoroughly cleansed. As no surgeon had, at that time, removed a ruptured appendix, and abdominal surgery is a development of later years, it is not surprising that I erred on the side of caution and conservatism. Such a half-hearted, timid operation would be inexcusable under similar circumstances at the present day.

CASE II. *Intestinal obstruction; symptoms simulating appendicitis; large doses of sulphate of magnesium; recovery.*—Male, aged twenty years. I was called to see the patient June 30, 1889, in consultation with Dr. Drummond, of Marlette, Mich., who had been attending him for three days. He had high fever, pain, and tympanites, with a localized tumor in the cæcal region. Dr. Drummond had given large doses of various purgatives and several enemata without procuring a passage of fæcal matter. I personally superintended the administration of a large enema, raising the hips and injecting a gallon of warm water, which, however, returned only slightly discolored.

I then recommended an immediate abdominal section, as the patient was in great pain; but his family being away, consent could not be obtained. While waiting for the arrival of his friends, I recommended the administration of a tablespoonful of sulphate of magnesium every three hours. This was given, and Dr. Drummond afterward told me that he gave in addition a dose of croton oil during the night, and repeated the enemata, with the result of procuring free fæcal evacuation at three o'clock in the morning. Recovery was rapid, and the patient was dismissed, cured, on July 15th.

CASE III. *Intestinal obstruction; probable pus-formation rupturing into the bowels; sulphate of magnesium; recovery, complicated by suppurating parotitis.*—Male, aged twenty-two years. I was called to see the case on March 28, 1890. He had been sick for two weeks, under the care of another practitioner, whom I was invited to meet in consultation; but as the gentleman did not appear, I was obliged to assume charge of the case.

The patient was taken with chills and pain in the abdomen, more severe in the right iliac region; was constipated throughout his illness, and was treated with enemata, and full and frequent doses

[1] Reported in detail in The Physician and Surgeon, vol. iv. p. 483.

of morphine and quinine. I found him free from pain, but under the influence of the morphine. The abdomen was distended and a well-defined, tender tumor occupied the cæcal region. The injections which had been given brought away small quantities of fæcal matter. His temperature was 102½° and his pulse 100. I was several miles in the country, in the midst of a violent snowstorm, and without instruments or assistance, or I should certainly have recommended an immediate operation, as I felt certain of the presence of pus. Under the circumstances I concluded to try the effect of salines, and to prepare for an operation on the following day. I directed the administration of a tablespoonful of sulphate of magnesium every three hours until some effect should be produced, and informed the family that probably an operation would be necessary.

At their request, Dr. H. M. Leach, of Saginaw, was invited to be present the next morning. At 9 o'clock in the evening I was again telephoned for, and was informed that the patient seemed much worse; but before my arrival a free evacuation from the bowels occurred and the aspects of the case had greatly changed. Six doses of Epsom salt were given before a movement was obtained. During the night several free evacuations occurred, and when Dr. Leach arrived in the morning the tumor and the serious symptoms had entirely disappeared, excepting the tenderness over the cæcum. The patient's progress to health was interfered with a few days later by the development of an abscess in the parotid gland.

The possibility of an abscess discharging by the bowel was considered, but the great quantity of fæcal matter precluded the possibility of finding pus, if it were present. The young man's mother was certain that she saw pus in his fæces a few days subsequently, which the occurrence of suppuration in the parotid would confirm. Restoration to complete health was slow.

CASE IV. *Recurring appendicitis; expectant treatment; recovery.*—Male, aged about thirty years. I saw him on July 25, 1890, in consultation with Dr. Atkinson, of Marlette. The man gave an interesting history. Several years ago he suffered from an attack of peritonitis, which subsided under treatment, but left a tender spot in the cæcal region which had persisted for several years, preventing the patient from participating in out-of-door sports and from doing manual labor; even riding in a wagon produced pain in the right side. He also stated that for some time he had noticed a tumor in the cæcal region, but that it gradually disappeared. He had suffered from chronic constipation for some years, but had been cured by his attending physician, Dr. Atkinson. On several occasions there had been recurrences of the swelling and pain in the cæcal region, confining him to his bed for some time, and then gradually disappearing without special treatment.

The present attack commenced a week previously to my visit, and was attended with considerable pain, especially upon attempting to exercise. His temperature had been more than two degrees above normal, and opiates were occasionally required at night to procure rest.

A well-defined, hard tumor, the size of a hen's egg, occupied the cæcal region, and was quite tender to the touch and movable. Our diagnosis was recurrent appendicitis, and the nature of the trouble was explained to the patient, together with the possible dangers and the probable result of an operation, as well as the possibility of acute symptoms supervening and necessitating an operation to save life. He chose the expectant plan of treatment. The tumor gradually disappeared, and the patient was doing his work (that of a bookkeeper) in three weeks.

Judging from the previous history, it is quite probable that this patient will have subsequent attacks, with possibly more serious results.

In my opinion, the performance of an aseptic abdominal section for the removal of the appendix, would be a wise and justifiable procedure in well-defined cases of this nature.

CASE V. *Constipation; abscess; abdominal section; recovery.*—Male, aged about twenty-five years. On August 8, 1890, I was requested by Dr. McCrae, of Marlette, to operate on this patient, whom he had seen on August 4th, in consultation with Dr. Wallace, of Elmer City. The patient had been ill for two weeks, and five years previously had what he said was an attack of peritonitis.

The present attack was preceded by constipation and was ushered in by a severe chill. Great abdominal pain, referred principally to the cæcal region, had been a prominent feature of his illness. His physician, Dr. Wallace, procured a movement of the bowels early in the case, and gave him excellent medicinal treatment. Dr. McCrae recommended an operation when he first saw the patient, but the friends did not give their consent. We now found him in considerable pain, with a tympanitic abdomen, and a well-defined tumor in the right side, most prominent in the cæcal region. His temperature was 102½°.

The friends hesitated to consent to an operation, although we pointed out its absolute necessity, and it was not until late in the day that they finally gave us permission to proceed.

Dr. Wallace anæsthetized the patient and Dr. McCrae gave me very valuable assistance during the operation.

I opened the abdomen in the usual manner, making a free incision over the prominence of the tumor. When the peritoneum was opened the cæcum and appendix appeared to be in a perfectly healthy condition. I was naturally much astonished at this, as we had diagnosed cæcal abscess.

A tumor could be felt under the cæcum, extending upward beneath the ascending colon. After passing a large aspirating needle into this mass several times a few drops of pus were obtained. The patient was now turned upon his side, aseptic cloths were packed around the intestines to keep them in place, and a free incision was made into

the abscess. More than a quart of thick, fæcal-smelling pus escaped.

I passed my finger into the cavity and found that it extended half-way across the abdomen, and was separated from the peritoneal cavity by only a thin membrane. There was rather free hæmorrhage from the sac, but it was controlled by injecting hot water.

The cavity was thoroughly washed out with boiled water, a drainage-tube was inserted, and the abdominal wound united with catgut, care being taken to attach the parietal peritoneum to that covering the abscess-wall.

Darkness came on soon after we commenced, and the greater portion of the operation was done by lamplight. Free discharge continued for several days, but gradually subsided. The abdominal wound, excepting where the drainage-tube was inserted, healed by first intention.

The after-treatment was conducted by Dr. Wallace, and consisted of daily irrigation, at first with boiled water, subsequently with astringent solutions.

The patient's general condition improved rapidly, and there was no elevation of temperature until three weeks after the operation, when he arose and walked into an adjoining room, and was immediately taken with violent pain, followed by an elevation of temperature to 102°.

This trouble gradually subsided, and Dr. Wallace wrote me on October 18th that the patient was then sitting up from two to fours daily, and was gradually gaining strength.

ROUGE'S OPERATION FOR THE REMOVAL OF A NASAL SEQUESTRUM.[1]

BY CHARLES H. KNIGHT, M.D.,
OF NEW YORK.

IN the opinion of Rouge,[2] of Lausanne, whose name has been given to the operation presently to be described, the condition known as ozæna is invariably associated with some lesion of the bony framework of the nose. Proceeding on this theory he tried to devise a method of operating on these unfortunate cases which should give more room for exploration and at the same time be devoid of excessive risk. He found that the dimensions of the entrance to the nasal fossæ might be considerably increased by separating the soft parts from the upper jaw, thus permitting the nose to be tilted upward toward the forehead. This procedure answered admirably in the case the history of which follows:

H. H., mulatto, aged thirty-five years, single, a waiter, came under my observation in December, 1879, having had, six weeks previously, a genital chancre. He had received only local treatment, although about three weeks after the chancre appeared he had a rash on his trunk and arms, and a sore throat. At the time of his visit to me the eruption had faded, but the chancre had not yet healed, and his tongue and tonsils were covered with mucous patches. He had enlarged inguinal, post-cervical, and epitrochlear glands. He suffered somewhat from osteocopic pain, and there was some alopecia. The general condition of the patient was good, and he was a man of good habits.

He was put upon mercurial treatment, under which he continued for about six months. In November, 1880, one year after infection, patches of tubercles appeared on his forehead and in front of his left ear. The tubercles ulcerated and coalesced, forming an open sore, which was very persistent, but finally yielded to mixed treatment and the local use of acid nitrate of mercury.

He had no more trouble until two years ago, when a swelling appeared in the roof of his mouth and his nose became so obstructed that at times nasal breathing was impossible. The swelling over the hard palate softened and ruptured, and at the same time several small pieces of dead bone were expelled from the nostrils.

He did not again come under my care until two months ago. At that time the septum had been completely destroyed but the columna was intact. The turbinated bones were gone, there were a large, partially detached sequestrum lying on the floor of the nose, and a perforation of the hard palate far forward. The central incisor teeth of the upper jaw, and the alveolar process and the bone of the maxilla itself at that point were missing. The patient's sense of smell was abolished, but the odor emitted from his nose was almost intolerable. There was remarkably little external deformity, the change of contour being limited to a very slight depression just below the bridge of the nose.

My efforts were first directed to removing the sequestrum piecemeal by the use of cutting-forceps and the electric drill. The patient proved to be so intractable, in spite of the free use of cocaine, that nothing could be accomplished, and I determined to remove the bone at one operation, with the aid of anæsthesia. This was done at the Manhattan Eye and Ear Hospital, September 16, 1890. The patient was etherized and placed on his back with his head dependent. An incision was made along the gingivo-labial fold of the upper jaw, and the alæ of the nose were dissected from the subjacent bone. The lip and the tip of the nose were everted and forcibly retracted upward, exposing the nasal cavity. The sequestrum was then seized with forceps and found to be firmly attached posteriorly. With the aid of my forefinger passed through the hole in the hard palate, and by a twisting process it was finally disengaged and was dragged forward; but it could not be withdrawn until the fibrous band which completed the arch of the maxilla was divided. Even then considerable force was required, and the lateral incisor teeth were so loosened that they had to be removed. Hæmorrhage was free, but by no means alarming. The parts were replaced, no dressing whatever being used. The

[1] Read at a meeting of the Laryngological Section of the New York Academy of Medicine, October 28, 1890.

[2] Nouv. Méthode pour le Trait. chir. de l'Ozène. Lausanne, 1873: Bull. Soc. Méd. de la Suisse Rom., Lausanne, 1868, vol. ii. pp. 265-68; Cong. période. internat. des. Sci. Méd., Compte rend., Genéve, 1878, pp. 337-54. San Francisco Western Lancet, 1880-81, vol. ix. pp. 200-4. Translated by Whittelly.

patient was kept in bed, put upon fluid diet, and not allowed to talk. The mouth and nasal cavity were frequently irrigated with a weak carbolized solution.

On the second day he left the hospital, having had no unfavorable symptoms. A week later two fragments of bone were removed through the nostrils, the wound in the mouth having healed.

The present condition of the patient is one of relative comfort. Fœtor is almost entirely absent, but there is and always will be more or less annoyance from the accumulation of secretion in the nasal cavity. The discomfort in eating and speaking, due to the perforation of the hard palate, may sometime be overcome by the adjustment of a dental plate. Meanwhile the opening has to be kept plugged with absorbent cotton.

It is difficult to determine what this sequestrum represents, both on account of its peculiar shape, and because the destruction of the bony walls of the nasal fossæ was so extensive. It is apparently the palatal process of the right superior maxilla, or the horizontal plate of the palate bone much thickened by inflammatory deposits. The normal landmarks have disappeared. The interior of the nose is converted into one immense cavity, its left wall being quite smooth, its floor being deficient anteriorly, and on the right side freely communicating with the cavity of the maxillary sinus.

In connection with the specific history given by this patient, it should be added that the man was married three years ago. His wife has never conceived, and has not given the slightest evidence of syphilitic infection. The patient himself has had no recent symptoms of active syphilis. The extraordinary destruction caused by the disease was, in my opinion, largely due to his neglect of treatment. Whether the concentration of its effects upon the nose was invited by some preëxisting intranasal lesion or deformity, I am unable to say.

In a discussion on deflection of the nasal septum, at the recent meeting of the British Medical Association, Woakes[1] expressed the opinion that Rouge's operation affords but little additional room, and my limited experience leads me in a measure to share this view. But for the loss of the median portion of the superior maxilla and division of the connecting fibrous band, this large sequestrum, which measured one and one-half inches in length and one and one-eighth inches in width, could not have been removed unbroken.

Although septal deflections are perhaps the most troublesome and perplexing condition with which we have to deal, yet the part usually involved is so accessible through the nostrils that the methods in ordinary use should suffice, provided the resiliency of the cartilage be destroyed. The obstacle to success lies, not so much in the contracted space in which we have to operate, as in the difficulty of overcoming the spring of the cartilage.

[1] British Medical Journal, September 13, 1890.

A recent number of the *Lancet*[1] contains an elaborate account of a case of deviated septum occurring in a boy seven years old, for which Rouge's operation was done by Mr. Clinton Dent. The operator suggests that the severity of the operation may seem disproportionate to the condition to be rectified, but consider it justified by the disfigurement which may be present in the case, by extreme impediment to breathing, and by the probability of serious complications should lung trouble supervene. The reasons enumerated are certainly excellent ones for attempting to remedy the condition in some manner, but they hardly seem to authorize the selection of a comparatively intricate method, provided the results are attainable in a simpler way.

Rouge's interest in the new operation, and, one might add, his misconception of the pathology of ozæna, may have led to the unnecessary use of his method; nevertheless it must be admitted that most of his results have been remarkably satisfactory. With one exception, in every case the symptoms were promptly and completely relieved. One of his cases, that of a woman[2] twenty-eight years of age, who died of pyæmic meningitis on the sixth day after operation, very forcibly illustrates the necessity of extreme caution in manipulating the upper part of the nasal chambers. In this case the whole of the perpendicular plate of the ethmoid was removed, and the os panum was gouged away over an area of about one centimetre, so that the finger could be passed directly into the right orbital cavity. At the autopsy the ethmoid bone was found to be healthy and uninjured and the cribriform plate was intact. There were no purulent foci in its vicinity, but the ophthalmic vein was occluded by a purulent clot and there was general suppurative meningitis. Such an accident might of course follow any operation, especially if encouraged by neglect of antiseptic precautions or by the use of excessive violence. In studying the human skull one cannot avoid being impressed by the extreme delicacy of the osseous tissue forming the roof of the nasal cavities, and by the fact that the effects of traumatism inflicted in this region might readily be transmitted to the cerebral fossa. Operative interference in this neighborhood should therefore be conducted with the utmost care. The fatal result in this case should certainly not be considered an argument against Rouge's operation. An equal degree of injury might easily have been done by an operation performed through the anterior nares.

Opinions differ as to the merits of Rouge's operation. Lucas[3] considers it free from danger, and in

[1] July 28, 1890, p. 1425.
[2] Watson: Diseases of the Nose and its Accessory Cavities.
[3] Lancet, January 20, 1883.

many cases advantageous. Harrison Cripps[1] thinks it easy of performance, and narrates a case in which he met with no annoyance whatever from hæmorrhage. Haward[2] has a high opinion of the method, and gives histories of four cases in which he resorted to it without accident. D'Azambrya[3] recommends it only for intractable cases, recognizing the possibility of phlebitis and purulent infection.

According to Beverley Robinson,[4] Trélat thinks that it should not be done, on account of hæmorrhage, the difficulty of performing it, and because of its inefficacy, he having had no successful result. Robinson himself seems to regard the danger of hæmorrhage as an important objection, which is hardly counterbalanced by any decided gain in space offered by this method. On the other hand, Bosworth[5] makes light of the risk and the difficulty of the operation. He thinks it interesting from an historical point of view, and from its novelty, and remarks that in many cases it best meets the indications.

In a recent paper by W. Spencer Watson, entitled "Ozæna and Some Other Forms of Rhinitis," may be found the following description of a so-called *failure* of Rouge's operation:[6]

"A girl, aged seventeen years, was under my care at the Great Northern Hospital with very obstinate ozæna. The results of treatment were so far unsatisfactory that the patient went to another hospital and placed herself under the care of a distinguished surgeon, who performed Rouge's operation for her. She afterward again presented herself at the Great Northern, and considered herself cured. There was, however, distinct evidence of the ozæna stench in her breath. I afterward met the surgeon who operated on her, and he very frankly acknowledged that though he had expected to reach some carious or necrosed bone, none had been found, and that he had been disappointed in the results of the operation. He also expressed his opinion that it was not so easy a proceeding as he had anticipated, and that there had been rather embarrassing hæmorrhage."

I would venture to criticise the title of the paper, as well as the opinion which does not discriminate between failure of an operation and lack of judgment on the part of an operator. Ozæna is not a form of rhinitis: it is a *symptom* of a form of rhinitis. Rouge's operation should never be undertaken until we know for what purpose it is to be done. The class of cases to which it seems to be particularly adapted is that of which my own is a typical example, namely, syphilitic necrosis of the skeleton of the nose. In this condition the sequestra are apt to be of large size and irregular shape, hence their withdrawal through the natural passages involves unnecessary pain to the patient and unwarrantable damage to the soft parts. The importance of their early removal must be admitted for several reasons. The prolonged retention of necrosed bone must impair the general health, and is at the same time a constant menace to adjacent healthy structures. Moreover, it renders the patient a burden to himself and to his associates.

The chief advantage of this method of operating is that an external wound is avoided, a point of no little importance with some individuals. There is no doubt that it does give some additional space, which may be still further increased, if necessary, by removing a part of the bony wall of the nasal fossæ. Even the slightly-increased space may be just enough to permit the extraction of a jagged piece of dead bone, the removal of which would otherwise have caused considerable laceration.

Finally, although apparently a formidable operation, it is not, in reality, especially hazardous. Hæmorrhage may be copious, but should be readily controlled by pressure, and the process of repair is rapidly completed without deformity.

[1] Ibid., May 5, 1877.
[2] St. George's Hospital Reports, vol. viii. p 123.
[3] London Medical Recorder, May 26, 1875.
[4] Nasal Catarrh, 2d ed., p. 219.
[5] Diseases of the Nose and Throat, vol. i. p. 626.
[6] Lancet, October 4, 1890.

REPORT OF A CASE OF SARCOMA OF THE OMENTUM AND LIVER.

BY J. M. ANDERS, M.D.,
PROFESSOR OF CLINICAL MEDICINE AND HYGIENE IN THE MEDICO-CHIRURGICAL COLLEGE; PHYSICIAN TO THE EPISCOPAL AND PHILADELPHIA HOSPITALS.

THE following case of sarcoma, which came under the observation of the writer during his last term of service at the Philadelphia Hospital, is reported on account of the immense size of the newgrowth, and, more especially, because of the great rarity of sarcomata in the location in which this was found:

C. B., aged thirty-five years, white, a native of Switzerland, and by occupation a laborer.

Family history: No family history of tumor; his mother died of dropsy; his father is living, sixty-two years old, and in good health.

Previous history: The patient had scarlet fever in childhood, and one attack of gonorrhœa; has had three healthy children. His wife miscarried once.

History of present illness: In May, 1889, the patient first noticed a small tumor low down in his abdomen, but gave it little thought. The tumor increased in size, and he had some indefinite abdominal pains—never cutting or severe—with slight diarrhœa and headache. Later, he complained of frequent micturition, and of severe abdominal distress when his bowels became constipated. In the early part of October, 1889, he passed portions of a tapeworm; and on October 9th was placed on anthelmintic treatment, which resulted in the passage of a long portion of the body of the worm. The patient was so much weakened by this treatment that he was not subjected to it again.

Meanwhile the abdominal mass continued growing. It was hard, distinctly nodulated, and slightly

movable. There was neither pain nor tenderness. The lower portion could be followed backward above the pubes, as though extending down into the pelvis. The entire growth could be distinctly outlined. On rectal examination, a mass was found in the pelvis and, seemingly, extending to the abdominal cavity. Soon after the patient entered the hospital the liver was found to be normal in shape and size—the edge was not felt—and so remained until a few weeks before the patient's death, when it began to extend below the ribs, and at last was easily felt as a large mass in the epigastric and right hypochondriac regions. Examination of the urine was negative; neither albumin, sugar, nor casts were found.

Thus the case continued; the patient did not emaciate, and his general health was fair; he frequently required purgatives, and was more or less comfortable after evacuation of his bowels. During the last week of life he lost flesh very rapidly, and died quite suddenly, apparently in great pain, after a few hours' unconsciousness.

Autopsy: Body that of a fairly well preserved white man. Abdomen tender and distended. Blue discoloration of the skin over the abdomen. At once, on opening the abdominal cavity, a large, whitish-pink, markedly lobulated and furrowed mass was exposed. The larger part of this extended from the pubes (with a small prolongation extending to the brim of the pelvis) to the ensiform cartilage. There was an adhesion to the abdominal wall just above the pubes. Above, the entire mass was seen to depend from the great omentum, at the root of which was attached a smaller mass. These two portions involved the omentum alone, and were not connected with any of the neighboring structures, excepting by a few inflammatory adhesions. Together they weighed thirteen pounds. On section, they were firm—about the consistency of a fibroid tumor—somewhat softened, and of a pinkish-white color. In the centre of the larger growth was a cavity the size of a large apple, containing a little whitish, watery fluid. A mass was then found attached to the peritoneal covering of the sigmoid flexure. This presented the same structure and appearance as the others, and was of the size of a large fist. A third mass was found filling the cavity of the pelvis and attached to the rectum and partly to the bladder. This was contiguous to the abdominal growth, but not at all connected with it. A fourth mass was attached to the ascending mesocolon, and by inflammatory adhesion to the abdominal wall.

The liver was removed, and was found slightly adherent to the diaphragm. Everywhere projecting from the surface were small and large nodes. In removing the organ a small node was detached from its position and left a round cavity lined with a smooth wall. On section, the nodes were found to be exactly similar to the large abdominal growths. The liver weighed more than eleven pounds. The gall-bladder was stained a bright yellow, but otherwise was normal.

The spleen appeared normal in every respect.

The kidneys were markedly congested, but otherwise of healthy appearance.

In the intestinal canal there was discovered a tapeworm (tænia solium), which was removed entire. Its exact location was, unfortunately, not determined. The intestines, which were pushed up into the right hypochondriac region, were normal.

The heart was healthy.

The lungs were normal, except that the lower right lobe was compressed by the enlarged liver.

On microscopical examination, the growth seemed to be a round-celled sarcoma.

As may be seen from this report, no lesions were found other than those in the liver and peritoneum.

To the above notes, which have been so ably detailed by my resident physician, Dr. Stengel, nothing remains to be added save, perhaps, a brief reference to the temperature-record. The temperature-chart shows that during about one-half the time that the patient was in the hospital there was slight elevation of temperature with remissions which occurred more frequently in the mornings than in the evenings. During the remaining time, including the last eight days, the temperature was subnormal. There was nothing unusual about the pulse, which

FIG. 1.

Upper portion of cut is the anterior surface of the tumor. At the extreme left was the attachment to the omentum.

FIG. 2.

Growth inverted.

varied from 80 to 114 beats per minute. The number of respirations per minute varied from 22 to 32.

REMARKS.—Excluding carcinoma, primary neoplasms of the serous membranes are regarded by high authorities as rare and sarcoma as very rare.[1] Waldeyer[2] has described a case of plexiform angiosarcoma of the peritoneum. After considerable painstaking investigation, I have been unable to find any references to other recorded cases than that of Waldeyer, and this a mere allusion. The question may arise in the mind of the reader, Was the omental growth a primary or a secondary one? According to the history, a small hard tumor was first observed by the patient "low down in the abdomen." Again, on account of the enormous size of the omental tumor (see cuts), coupled with the history of the progress of the case from the date of admission to the date of the patient's death, it is quite certain, I think, that the omental growth was primary. At all events, evidences tending to show that the liver was implicated were wanting until late in the course of the disease. Again, the liver is prone to be the seat of metastatic growths on the one hand, and is extremely rarely the seat of primary sarcomata on the other.

The disease in this instance must have been rather rapidly disseminated, as shown by the several distinct masses, including metastasis to the liver, in this respect following a law of sarcomata, more particularly of the round-cell variety.

1637 N. BROAD STREET, PHILADELPHIA.

THE TREATMENT OF ECTOPIC PREGNANCY.

BY J. M. BALDY, M.D.,
OF PHILADELPHIA.

OF the total number of cases of extra-uterine pregnancy there can be no doubt whatever that a certain number go on to a spontaneous cure, and I believe that many more terminate in this manner than we at present imagine. The most common method is by a rupture into the folds of the broad ligament, the death of the embryo, and a gradual complete or partial absorption of the resulting hæmatocele, embryo, and membranes. That death of the embryo may occur before rupture, and while it yet remains in the tube, is, I think, not only possible, but probable in a certain proportion of cases. The result in such a case would be the same as in the former. Just what proportion of cases end in this happy manner is a mere matter of speculation.

These results would naturally make us take into consideration, as one of the methods of treatment, theoretically at least, the expectant plan; but I know of no authority bold enough to advocate it practically. Such a large number of cases terminate fatally, and the dangers to the patient are so great that, at the present time, it is thought necessary to take some active steps in treating every case which comes under observation, and not to take any chances of disaster overtaking the patient. This course seems to me to be the only reasonable one, and when a case is even only suspicious, active measures should be taken to prevent the possibility of future trouble.

In considering the treatment of extra-uterine pregnancy I shall confine myself to the period before rupture. All are agreed that after rupture of an ectopic gestation-cyst has taken place there is but one proper treatment, viz., abdominal section. In the discussion of the relative merits of abdominal section and electricity it has too often been assumed by the opponents of the electrical treatment that this treatment is recommended for the post-rupture period. This is not true; no one whose word carries the slightest weight recommends the use of electricity after a rupture has taken place into the abdominal cavity, or after a rupture into the folds of the broad ligament, beyond a certain period, the limit being generally fixed at or under four months; later than this, even electricians recommend either waiting for a viable child and then laparotomy, or laparotomy at once.

There are but two forms of treatment which I shall consider, viz., abdominal section and electricity. All operative procedures from the vagina, except in very exceptional cases, are unscientific and bungling; the sac cannot be removed without the greatest difficulty (if it can be removed at all), and the removal of the whole sac is a great desideratum. Puncture methods, with the object of drawing off the liquor amnii and killing the fœtus, have, in times past, proven so disastrous that I do not think that, with our present safe methods of dealing with the disease, anyone would knowingly attempt them; certainly no one in America. The injection of morphine into the sac, as practised by Winckel and others in Germany, has not proven a success, even in their hands. In Winckel's *Text-book of Midwifery*, translated by Edgar, eleven cases are mentioned as having been treated in this manner. Of the eleven, three were fatal, a mortality of almost twenty-five per cent. The merest tyro could not reproduce such an unfortunate record with either electricity or surgery.

The only method of applying electricity which will be included in my subsequent remarks is the passage of either a faradic or galvanic current through the gestation-sac without a puncture being made. Certain writers, especially foreigners, have

[1] It is well to bear in mind that tumors of the subserous tissues are common, including sarcoma.

[2] A Text-book of Pathological Anatomy and Pathogenesis, by Ernst Zeigler, p. 137.

persistently and, it would almost appear, wilfully misunderstood Americans when they talk of the use of electricity in this disease. The advocates of this method of treatment have always and most emphatically claimed that they did not puncture, and that it was dangerous to do so. In the face of all that has been said on this subject, it is simply gross ignorance, or worse, to misunderstand longer and misquote. The contention, then, is between abdominal section and electricity applied after the most approved methods. I make no distinction between the faradic and galvanic currents. Both are used, both are recommended with equal fervor, and apparently are followed by about the same results.

The advantages of the treatment of extra-uterine pregnancy in the prerupture stages by laparotomy may be summed up as follows:

1. By the operation the fœtus, membranes, and sac are completely removed.

2. Any complicating disease which may exist can be successfully dealt with at the same time.

3. All immediate danger from the existence of the abnormal gestation is at once and forever removed.

4. All possible future trouble from the occluded tube is removed.

5. In cases of mistaken diagnosis, whatever may be found will require surgical intervention, and therefore the mistake is productive only of good.

6. The operation has very little, if any, mortality, and is safe in the hands of anyone who can do a laparotomy with safety.

The disadvantages claimed for the operation by its opponents are:

1. The dangers of the operation itself.

2. Unsexing and mutilation of the patient.

3. The possibility of mistakes in diagnosis, and the consequent unnecessary operation.

4. The patient's horror of an operation.

The advantages of the electrical treatment, as claimed by its advocates, are:

1. The certainty of killing the fœtus.

2. The probability of the absorption of the sac-contents, and the subsequent shrinkage of the tube to a natural size.

3. When the sac-contents are not absorbed, the harmlessness of the remaining tumor.

4. The possible future impregnation of the patient.

5. The avoidance for the patient and friends of the horrors of an operation.

6. The harmlessness of the treatment if a mistake in diagnosis be made.

The disadvantages claimed for the electrical treatment by its opponents are:

1. The uncertainty of killing the fœtus.

2. The danger of delay necessarily incident to the treatment.

3. The dangers during the treatment.

4. The harm done in case of mistaken diagnosis.

5. The dangers to the patient after the treatment is finished.

6. The doubtful nature of the disease in many of the cases treated in this manner.

First, as to the treatment by abdominal section. The points of advantage, as claimed by its advocates, and as given above, make it an ideal treatment in its results, provided those claims can be substantiated. Several of these claims are questioned by its opponents, and we will consider them *seriatim*.

1. It is claimed that laparotomy is a dangerous operation at all times and under all circumstances. This must theoretically be granted at once, but when practically applied to extra-uterine pregnancy it cannot be shown to have existed in the past few years, unless it be in the hands of incompetent men. I am unable to find in the literature of the subject a single case of death following the operation when performed in the pre-rupture stages; and even after rupture there are no deaths which can be justly attributed to the operation—in almost every instance of death the patient was beyond help in consequence of hæmorrhage or shock, or both. On the other hand, look at the long list of brilliant results as reported in the New York and Philadelphia Obstetrical Societies, to say nothing of Tait's individual list of forty-two cases. In the face of this overwhelming evidence, in order to substantiate the fact of danger, a list of bad results must be produced; and as yet no one has had the temerity to attempt this

2. The unsexing and mutilation of the patient.

In no other part of the body is it considered mutilation to remove a useless, diseased, and dangerous member. This cry is merely the plea of the demagogue, and savors of a species of political trickery unworthy of a respectable scientist. The patient is not mutilated, and it is rank nonsense to say that she is. She certainly is unsexed, in the sense that she cannot become again impregnated upon the side from which the sac was removed; that she is unsexed in any other sense is untrue. It must be remembered that almost always the disease is unilateral, and the opposite side remains undisturbed, and in good condition for performing its functions. The case of Tait's[1] which became impregnated a second time after the removal of a unilateral ectopic gestation proves the truth of this. But it is said that double tubal pregnancy exists at times! This is true, and in that case the sterility would be complete. It has never been proven in a

[1] Diseases of Women and Abdominal Surgery, 1889.

single case that the woman is not just as sterile after a cure by electricity, or even after a spontaneous cure, as she is after the operation. A case or two may have become pregnant after such treatment, but how can it be proven that the impregnation did not take place on the opposite side, as was the case in Tait's patient, as well as in several others on whom the operation was performed? Both theoretically and practically all the facts are against the electricians, and they must either prove their point or abandon it.

3. The possibility of a mistaken diagnosis, and the consequent unnecessary operation.

In competent hands, even though a mistake in diagnosis be made, the operation will not have been unnecessary. No pelvic tumor exists, which gives rise to symptoms sufficiently serious to cause a diagnosis of ectopic gestation, and which does not require treatment, and the most generally accepted treatment for all these diseases is laparotomy and removal.

4. The horrors of the operation to the patient and her friends.

This is incident to all operations, great or small, and cannot be entirely avoided, however much it is to deplored. I have never found a great amount of trouble from this. When I have explained to the patient and her friends the supposed nature of her complaint and pointed out its dangers they have generally been anxious for the operation and did not display half as much anxiety over it as they did over the disease. Electricity itself is not altogether free from the same objection as far as the patient is concerned. To frighten a woman, it is merely necessary, as a rule, to tell her that something has to be done. Women are not much given to discriminating between degrees of danger in operations. An operation is usually much the same to patients, whether laparotomy, cutting off a toe or applying electricity to kill something, although it must be admitted, that, as a rule, they would object to electricity the least if the choice were given them.

It would seem, then, that the claims for the advantages of the surgical operation are well established, and that in the operation we have an ideal treatment. Here we could rest content did not the advocates of the electrical treatment claim equal advantages for their method. If these advantages as claimed and as given above can be substantiated, it must be admitted that it is equally ideal with the surgical procedure, and the patient must in each case be given her choice, after the advantages of each have been impartially placed before her. In such an event, that she would in the majority of cases choose the electrical treatment is pretty certain.

To these supposed advantages of electricity certain objections are made by its opponents, and, as in the case of the surgical treatment, we will consider these objections *seriatim*.

1. The uncertainty of killing the fœtus.

Coe[1] reports the case of a woman who was supposed to be suffering from extra-uterine pregnancy. Her doctor, who was a most careful practitioner, used first a strong galvanic and then a faradic current with the view to destroying the fœtus. As a result of the application the patient had severe uterine colic and more or less shock. After this treatment had continued for two weeks the patient had an attack of abdominal pain more severe than before. Dr. Coe saw her at this time. During the following week she was reported as growing worse and had become very feeble, and her physician feared that peritonitis was developing. Finally she had another attack of pain with apparent collapse, and an exploratory incision was made, only to find a normal pregnancy of three months. The patient recovered from the operation and aborted later. In this case not only was an extra-uterine pregnancy incorrectly supposed to be present, but the electricity failed to kill the fœtus.

Buckmaster[2] reports the case of a patient who had fibroid tumors of the uterus and who became normally pregnant. Not being aware of the pregnancy, at the third month of gestation he put the woman under chloroform and passed twenty milliampères of a galvanic current for twenty minutes; in spite of this the patient went to term and was delivered of a living child.

Bovee[3] reports the case of a patient who had formerly been a patient of Chadwick's, of Boston. Dr. Chadwick had diagnosed the case in the ninth week and applied electricity in the eleventh week, and, he thought, killed the fœtus. At the end of five months Bovee delivered a five months' fœtus from the vagina. It was pronounced a five months' fœtus by Billings and Lamb in Washington, and later by Minot in Boston, who believed that the pregnancy had advanced to one hundred and fifty-three days, and could not reconcile this with the opinion that the fœtus was destroyed by electricity in the eleventh week.

Wylie[4] records a case in which electricity had been used under ether several times and yet the fœtus lived. It was finally killed by injections of morphine and as a result of this treatment the contents of the sac suppurated and the patient lost her life, an operation failing to save her.

I could give a number of other failures to kill the fœtus, but will mention only one more. The case has not yet been published, but full details will soon

[1] American Journal of Obstetrics, January, 1890, p. 95.
[2] Ibid., p. 74.
[3] Annals of Gynecology, July, 1890, p. 538.
[4] American Journal of Obstetrics, vol. xxiii. No. 2, 1890.

be given the profession. The woman was a patient of Dr. Morris J. Lewis, of Philadelphia. She was seen in consultation by Dr. B. C. Hirst and extra-uterine pregnancy diagnosed. Dr. G. Betton Massey was called in to apply electricity for the destruction of the fœtus. Six treatments were given, the galvanic and faradic currents being used on alternate days. Over one hundred milliampères of the galvanic current and the full force of the faradic current were given at each of the respective sittings. The three attendants then agreed that if the fœtus was not dead they could not kill it. The woman went on from bad to worse, and a month later Dr. C. B. Penrose removed a growing tubal pregnancy.

Further comment on this is unnecessary. It is simply folly to insist that electricity is sure death to the fœtus in the face of such evidence.

2. The dangers of delay necessarily incident to the treatment.

These are by no means small. Although a tubal pregnancy *may* continue to grow until the thirteenth week or later without rupturing, yet it only too often ruptures much earlier. I assisted Dr. Montgomery[1] in an operation on a patient to whom this accident happened in the fifth or sixth week. Electricity was being applied at this time.

Montgomery[2] records yet another case in which the rupture took place at the fifth week.

Engelmann[3] records a case of the disease in which rupture took place earlier than the fourth week, as proven by the size of the gestation-sac and the fact that no menstrual period had been missed.

Dr. R. P. Harris[4] says that he knows of two cases in which rupture occurred as early as the third or fourth week. Rupture may occur at any period, and no one can predict just when. For this reason, if a diagnosis is made, or if the disease is strongly suspected, it is not safe to adopt a treatment which avowedly must continue for a number of days, and probably for a week or two. A case in point is one which was taken by a New York physician to the office of Dr. T. Gaillard Thomas for an opinion. Dr. Thomas diagnosed extra-uterine pregnancy, and advised delay and the use of electricity. While in the street, on her way home from the doctor's office, the rupture took place, and the woman had a narrow escape from death. These cases and those seen by Dr. Formad, the coroner's physician of Philadelphia, show that rupture may take place at any time between an early and a late period. A close inspection of the literature of the subject will give the most sceptical plenty of material for thought.

3. The dangers during the treatment.

These dangers are strenuously denied by many.

Brothers[1] reports four cases in which alarming symptoms supervened during or immediately after the treatment, and there are many others in his list in which minor bad symptoms followed.

Coe[2] records a case of extra-uterine pregnancy at the second month, which he saw in consultation, in which the diagnosis was confirmed by the late Dr. Hunter. The faradic current was used, the sac ruptured, and it was easy to detect gradual increase of the resulting hæmotocele.

Janvrin[3] reports a case in which death followed the third application of electricity, on account of rupture of a vessel in the wall of the sac.

4. The harm done in case of a mistaken diagnosis.

It is contended that no harm can possibly be done in the event of a mistaken diagnosis. I have not had time to go over the records, and look up these cases, but will refer to one case reported by Dr. T. Hewson Bradford, and which I myself saw, in which electricity was given by Dr. G. Betton Massey through a pelvic mass, the diagnosis being incorrect. The case proved to be one of intra-ligamentary cyst. During two applications the woman became so alarmingly ill that the treatment was discontinued, and the knife resorted to by consent of all the physicians concerned in the case. I have during the past two years seen at least half a dozen patients go to bed and remain there for a week or more with an alarming attack of peritonitis after a single treatment in the hands of an expert. Everyone who has any experience with electricity must have seen similar cases, and know only too well that harm may result from sending a current of electricity promiscuously through pelvic growths.

5. The dangers to the patient after the treatment is finished.

Brothers[4] records two cases (Lusk and Chadwick) in which suppuration with discharge of the fœtus occurred in consequence of the use of electricity.

J. P. Tuttle[5] records a case in which, after the electrical treatment, he delivered a four-months' fœtus *per rectum*.

G. M. Tuttle[6] records a case of between two and three months, in which the faradic current was applied daily for ten days. He says: "In this case the thorough and intelligent use of electricity for the purpose of destroying the embryo was followed by no evident amelioration of symptoms, which, on the contrary, continued to grow worse with an uninterrupted increase in the size of the tumor." In this case, not only was the danger not abated,

[1] Annals of Gynecology, July, 1890, p. 542.
[2] Ibid., p. 536.
[3] Ibid., May, 1890, p. 376.
[4] Ibid., March, 1890, p. 292.

[1] American Journal of Obstetrics, vol. xxiii. No. 2, 1890.
[2] Ibid., April, 1890.
[3] Transactions of the American Gynecological Society, 1887.
[4] American Journal of Obstetrics, vol. xxiii. No. 2, 1890.
[5] Annals of Gynecology, February, 1889.
[6] American Journal of Obstetrics, January, 1890.

but the electricity failed to kill the product of conception.

The claims made by the electricians that after the death of the fœtus all trouble is over, would seem to be disproved by these cases, amounting to about eight per cent. of the whole number of women treated, and supposed to be cases of ectopic gestation. In addition to these the literature is full of similar cases, in which the fœtus died from causes other than electricity. The after-results, however, of such cases can differ in no way from those killed by electricity. If the claims of the electricians are correct, then after the death of the fœtus, from whatever cause, the results must be the same, viz., absorption and shrinkage.

Thompson[1] records a case of extra-uterine pregnancy in which death of the fœtus occurred between the second and fourth months. Later, the fœtal bones were passed by the bladder.

Goelet[2] records a case suffering from supposed pelvic hæmatocele. A vaginal incision was made behind the uterus, and a fœtus of about the third month, in a state of decomposition, was removed.

Tuttle[3] records three cases in which the fœtus died early, and after varying periods of continued suffering the sac and contents had to be removed.

And so it is all through the literature—the number is legion. In addition to these cases, Hanks[4] reports that in a series he has collected, in four cases the fœtus sloughed into the rectum, in one into the bladder, and in four into the uterus.

Brothers[5] has tabulated fifty cases of supposed extra-uterine pregnancy treated by electricity, all he could collect from literature, and yet, strange to say, he has missed many with bad or indifferent results, some of which are included in this paper. Of these fifty cases fifteen are noted, after periods of from three months to three years, as still having pelvic masses, some of them the size of a goose-egg, a pigeon-egg, a man's fist, etc. Does anyone doubt that the time is coming when some of these very women will have a repetition of their troubles, and will require an operation for relief? Is this the kind of cure the electricians boast of?

6. The doubtful nature of the disease in many of the cases reported as treated in this manner.

In connection with this, does not the fact that out of the grand total of fifty, fifteen cases still have masses of considerable size in their pelves, form presumptive evidence that some of the cases had something besides ectopic gestation? If the difficulties of diagnosis have not been overcome by the surgical men (as I have proven by many cases reported elsewhere),[1] is it strange that the electricians should make as large a proportion of mistakes in the same direction? The same gentlemen who have verified the diagnosis in many of the electrical cases, and on whose opinion the truth of the diagnosis is based, have been proven to be mistaken in other cases in which they made just as positive diagnoses, and have themselves repeatedly said that they have over and over made the mistake. By what reasoning can it be claimed that they are infallible in just the cases in which it is impossible to verify the diagnosis?

Nor is this presumptive evidence all that there is against the electricians on this point. Wylie[2] has proven by post-mortem examination that three supposed cases of ectopic gestation, treated by electricity, were not such at all.

In three more (McBurney, Garrigues, and Trask) the fœtus was discharged by the natural passage. Almost to a certainty these were cases of normal gestation. It is not at all strange that such a mistake in diagnosis was made; there are many cases on record in which a normal pregnancy was overlooked, even after the sound was repeatedly passed. The case of Coe, quoted above, in which electricity failed to relieve, and an exploratory laparotomy revealed a normal pregnancy, is a case in point. Had the exploration not been made, that case would have been on record to-day as a case of interstitial pregnancy in which the electrical treatment forced the fœtus into the uterus; and with exactly as much ground for the supposition as the three cases of McBurney, Garrigues, and Trask.

I cannot review each of the reported cases in detail, but shall refer to a few, and show how doubtful was the diagnosis even as reported. But, first, let me call attention to the cases of Cushier and Harrison, in each of which the credit for the cure has been given to electricity, to which it does not belong.

T. Gaillard Thomas[3] saw the case of Cushier in consultation, and a diagnosis of ruptured interstitial pregnancy was made. Operation was thought of, but was abandoned, partly on account of the condition of the patient, and because the tumor, which had suddenly appeared, was entirely due to the rupture. Cushier says: "During the next few days there was a most marked improvement. The tympanites entirely subsided, and pain was completely controlled . . . the tumor could now be felt as a circumscribed mass . . ." After

[1] American Journal of Obstetrics, August, 1889.
[2] Ibid., January, 1890. [3] Ibid., January, 1890.
[4] Transactions of the American Gynecological Society, 1888, p. 361.
[5] American Journal of Obstetrics, vol. xxiii. No. 2, 1890.

[1] THE MEDICAL NEWS, December 20, 1890.
[2] Transactions of the American Gynecological Society, 1888, p. 391.
[3] Ibid., 1884, p. 167.

this, fearing that the embryo *might posssibly* be still living, although the evidence was against this, and the patient was fast getting well, a faradic current was used, and now, forsooth, this is claimed as an electrical cure. It was clearly a case of spontaneous cure.

The case of Harrison,[1] which was seen by T. Gaillard Thomas, was a very similar one. Harrison himself says that the fœtus was dead when the treatment began, and he protested against its use—another case of spontaneous cure for which electricity has assumed the credit.

Cocks[2] called T. Gaillard Thomas to see a woman who had menstruated last on December 13, 1883. About the middle of January she began to suffer from pain, nausea, and vomiting. On March 27th, when seen by Thomas, a tumor about the size of a man's fist was discovered to the left of the uterus, and gave the sensation of a tense sac filled with fluid. The following day, or about three and a half months after the last menstruation, the faradic current was passed, and was applied daily for eight days with no change either in the condition of the tumor or the patient. Two weeks later galvanism was begun, sometimes with and at other times without ether, and was continued for eight or nine days, at the end of which time it was found that but little change had taken place. This was at between four and five months. On September 15th, about nine months after the beginning of the attack, it is said: "The pains were much less severe in character, and, though occasionally paroxysms occur, yet they are less violent than formerly, and much less frequent. . . . On examination the tumor is still found, but decidedly smaller, less tense, and less painful on pressure." From the history of this case there is not the slightest possibility of its having been a case of ectopic gestation; even Thomas says: "I freely confess that I am not entirely positive about the correctness of my diagnosis," and I think anyone who will carefully read the details as he gives them will quite agree with him in his doubt.

Lambert and Jones[3] record a supposed case of ectopic gestation which T. Gaillard Thomas saw in consultation. I will only remark that all the evidence of this disease being present is contained in an extremely unsatisfactory history. At the consultation Drs. Thomas and Jones pronounced the case one of ectopic gestation, her attending physician, Dr. Lambert, was in doubt, and Dr. Fordyce Barker rejected the diagnosis. In the words of Thomas, "the majority ruled," and the electrical treatment was instituted. The woman went home to the country at the end of ten days and at the last examination had still a pelvic tumor as large as a hen's egg. Is the profession ready to accept obediently that diagnosis? I think not.

The two cases of Allen[1] are both more than doubtful. In the first one the history of ectopic gestation is far from convincing, and three years after the treatment there was a well-defined tumor, the size of a large fist, very little if any smaller than before treatment. The second case is even more unsatisfactory from a diagnostic point of view, and the tumor still existed of almost its original size when Allen reported the case.

In the case that Wilson[2] reports, he himself says that he is "not satisfied it was a case of extra-uterine pregnancy." Dr. Howard saw the patient and was opposed to the diagnosis. There is no need to produce more evidence on this point. Any fair-minded, experienced man who will go thoroughly over the detail of these cases will soon become convinced that a large number, if not the majority of them, were mistakes in diagnosis. They at least are so dubious that they should have no place in scientific discussion.

After the preceding it is needless for me to say that I am strongly in favor of the treatment of extra-uterine pregnancy in its early stages by laparotomy, whenever and wherever diagnosed or strongly suspected. When we carefully analyze the cases which have been treated by electricity, eliminating those which are plainly mistakes in diagnosis, or of too doubtful a nature to be of any scientific value, and then place the failures and dangers of the treatment by the side of the remaining (or even by the side of the total number claimed by the electricians), the proportion of disaster is so overwhelming in comparison to those of laparotomy, that to my mind but one conclusion is rational.

In closing I wish to direct attention to the fact that two of the gentlemen who were among the most ardent admirers of the electrical treatment a year ago, have at last given up their idol. In 1889, Dr. E. E. Montgomery[3] said: "Electricity affords an agent for the destruction of fœtal life, which experience discloses can be relied upon for the arrest of development and the speedy and safe cure of our patients." In 1890,[4] he says: "I have been led to change my mind by this case, and another in which Dr. Baldy assisted me. This case with the last one has shaken the faith I had in the use of electricity."

Dr. George J. Engelmann[5] says that he had for-

[1] Transactions of the American Gynecological Society, 1882, p. 230.
[2] Ibid., 1884, p. 172.
[3] Ibid., 1884, p. 176.

[1] American Journal of Obstetrics, 1872, p. 161.
[2] Ibid., 1882, p. 205.
[3] Transactions of the American Association of Obstetricians and Gynecologists, 1889.
[4] Annals of Gynecology, July, 1890, p. 542.
[5] Ibid., May, 1890.

merly urged the use of electricity in this disease, but he adds: "Increased experience has caused me to waver, and a case recently reported by Dr. Mooney, of this city, has appeared to me so convincing an argument in favor of *immediate operation* at *whatever period* extra-uterine pregnancy may be detected, that I am now an earnest advocate of surgical interference in all such cases."

THE TREATMENT OF FAILING CIRCULATION, WITH SPECIAL REFERENCE TO THE USE OF STRYCHNINE.

BY C. S. BRADFUTE, M.D.,
DEMONSTRATOR OF THERAPEUTICS IN JEFFERSON MEDICAL COLLEGE; MEMBER OF THE NEUROLOGICAL STAFF OF THE PHILADELPHIA HOSPITAL.

WHEN a physician is confronted by a case in which there is either sudden, gradual, or threatened failure of the circulation, the pregnant question arises—What is he to do? Naturally, his first thought is of some drug which, either from his own experience or that of others, he knows has been successful in combating or postponing this formidable complication, and the remedy he most desires is one that will act promptly and, as nearly as possible, entirely upon the circulatory apparatus. His judgment in the selection will be guided, if he be not merely an empirical therapeutist, by the cause of the cardiac weakness, the disease and condition of the patient, and the physiological action of the drug. It may seem unnecessary to make this preliminary statement, or even to broach the subject at all, to those whose high positions as teachers of medicine give them unlimited opportunities for experience and observation, and may even seem truistic in view of the fact that most of the matter here discussed can be found in so many text-books. But when it is considered that the average practitioner is prompted to request a consultation when this symptom begins to show itself, and that, as a matter of fact, comparatively few are able to cope with it, the writer may be pardoned if he omits an apology. He submits this paper with some diffidence, to invite a discussion upon this important subject, and in the hope that it will suggest to the minds of those who are familiar with the treatment of so-called heart-failure the usefulness of a publication of their knowledge of it.

There are numerous instances of the heart ceasing its function when it cannot be said that life would have flown under proper treatment, and it is in these cases that there is shown either the lack of proper remedies or the absence of a sufficient amount of medical skill, if not negligence. As previously stated, the remedy should act upon the circulatory system, and in a way that will increase the strength of the cardiac contraction and promote the rapidity of the circulation; and upon other parts of the organism it should not have any, or, at least, only a minimum, antagonistic concomitant action, which would tend to annul or counterbalance the prime effect upon the heart.

A glance at the physiological action of the cardiac tonics will show that some of them have a very disagreeable behavior in this respect, and in none is it so well marked as in the case of digitalis, which is generally adopted as an efficient agent. Quoting the words of an eminent writer, digitalis "prolongs the diastole and increases the vigor of the systole," an effect most desirable, because it gives the ventricles time to fill and to expel a maximum amount of blood into the lungs and arteries, but, unfortunately, it at the same time contracts the arterioles and raises the blood-pressure, thus lessening the rapidity of the blood-flow and preventing a proper washing out of waste products from the tissues. In addition to this, if large doses be given, it impairs the irritability of the sensory and motor nerves and muscular fibres, and interferes with reflex action, effects that cannot fail to retard nutrition. Clinically it has been found unsatisfactory in those low states of the system brought about by high temperature and degeneration of the muscular tissues—notably of the heart itself—such as are found in typhoid fever. Recently a scientific teacher of therapeutics was quoted as recommending that digitalis be employed in typhoid fever, and that he had had most excellent results from its use. It is difficult to understand this opinion, as the same writer states in his book that he has seen digitalis produce, even in therapeutic doses, a dicrotic pulse, and numbers of authorities have, both by their writings and lectures, condemned it. The late Dr. James H. Hutchinson was very pronounced in his opinion against the employment of the drug in fever, and once told the writer that he knew of several cases of sudden death occurring in the course of fever that were unquestionably due to the digitalis administered. In the failure which accompanies simple organic disease of the heart itself, and in that which follows the shock due to hæmorrhage and similar conditions, digitalis is the proper remedy; but in the class of cases mentioned above it does not fulfil the requirements. The slowness of its action precludes its use in acute heart-failure, for, though given hypodermically, it is from two to four hours before its peculiar effect is manifested. Clearly, then, digitalis should be employed in only a limited class of cases, and is not the drug for the majority of emergencies.

Ammonia has been spoken of as the most powerful cardiac stimulant known, but its action is transient and of short duration. In some cases it does not act well. Wood speaks of it as being most serviceable in purely functional cardiac failure, and

as not a reliable agent in that accompanying the adynamic fevers. To obtain from it a satisfactory effect it must be administered at short intervals, from every half-hour to one hour, and an insuperable objection to it is the fact that it cannot be used hypodermically without producing an inflammation at the site of the injection; and, in a disease like typhoid fever, fatal sloughing might result. It can be administered by the veins, but this is always a dangerous procedure, and it is doubtful if it be effective, as strong alkalies injected into the circulation of animals destroy the red corpuscles. It possesses the advantage of not being followed by the depression of the nervous system which constitutes so objectionable a feature in the case of alcohol, but from its chemical properties it is difficult to use in states of unconsciousness.

Atropine is justly regarded by many as a cardiac stimulant, and Harley has highly recommended it; but it is really more of a respiratory stimulant, and is only adapted to certain cases. Bartholow is inclined to doubt its usefulness in cardiac failure, since it exhausts the irritability of the heart ganglia; but, since the preliminary period of stimulation is well marked, he advises its use in temporary depression of the heart's action. When given in large doses it locks up the secretions and must necessarily interfere with nutrition and lessen the excretion of waste products, and, on this account, cannot be safely employed in uræmia.

Alcohol is a safe and effective heart-stimulant when intelligently used, and is probably the best general tonic in the list. It possesses the advantage of being comparatively non-toxic, and can be administered for a longer period than some of the other heart-tonics, without deleterious effects. Its influence upon the processes of nutrition renders it especially adapted to those long-continued cases of gradual circulatory failure that are encountered so frequently in the low fevers. But its effectiveness in cases of sudden or profound cardiac failure occurring in the course of acute maladies, such as pneumonia, in which large amounts must be given, either by the mouth or hypodermically, is open to doubt, since the profound depression that follows its exhibition in large doses must certainly conduce to an unfavorable result. It may be more correctly regarded as prophylactic rather than as an active combative agent.

Caffeine and cocaine have lately been much used as heart stimulants, and they are of undoubted value in simple weakness, when there is no reason to suspect that the weakness is a premonition of beginning failure. The action of the former is fugacious, owing to its chemical instability, and the writer has seen the delirium of typhoid fever markedly increased by cocaine. They, like alcohol, may be better classed as prophylactics.

Nitroglycerin is an active remedy in certain cases in which the heart is slow and weak. It paralyzes the inhibitory centres, dilates the arterioles, and with the increasing heart-action thus induced the circulation is rapidly promoted. A very interesting article on the comparison between the action of this remedy and digitalis lately appeared in the *British Medical Journal*, which serves most aptly as evidence that neither drug can be depended upon in all cases. The transitory impression made upon the heart by nitroglycerin compels the drug to be given in frequently-repeated doses, and its powerful toxicity renders it too dangerous for general employment. The writer administered it once with most happy results in a case of shock due to traumatism, the pulse increasing in three and one-half hours from 40 per minute to 78. In such instances there is, of course, doubt as to the part played by the medicine. A rapid heart would be a contra-indication to its use.

Ether acts quickly and is effective in some instances of cardiac failure following traumatism, but the effect is not sustained, and it is not advisable to give it for more than a short time.

Strophanthus, sparteine, convallaria, and adonis vernalis have not as yet been sufficiently studied to be considered.

In the array of remedies that are criticised above it is seen that none of them fulfils the indications for relief that are presented by most cases of heart-failure, without at the same time exhibiting deleterious counter-effects. An agent which will sustain the circulation must not interfere with the resulting good effects of such action by any secondary manifestations, and until one can be found that will behave in this manner the problem must be met by such a combination of remedies and methods as will most nearly resemble the desired drug.

The writer considers strychnine, if not the best, at least one of the best, cardiac stimulants available. A study of its physiological action undoubtedly shows that it, too, has objectionable features, but fortunately they can, to a certain extent, be mitigated by the conjoint use of other remedies. Strychnine is very diffusible; it acts quickly, and the effect is sustained. When a medicinal dose is administered hypodermically the heart at once responds by an increase in the strength of its movements, the arterioles contract, and the blood-pressure rises. At the same time the irritability of the sensory and motor nerves and the excitability of the muscular tissue are greatly increased, thus promoting nutrition-changes and mechanically favoring a rapid blood-current. A spasmodic contraction of the renal capillaries is likely to occur if large doses

are given, but the interference with the kidney secretion can be obviated by diuretics having a selective action upon the urinary organs. Lately strychnine has been strongly recommended by some eminent observers as a reliable agent when other members of the group of cardiac tonics are contra-indicated, and to the writer, who used it a great deal while resident physician in the Pennsylvania Hospital, it has proved very satisfactory. The stimulation is not confined to the circulatory system, but is general, and in many respects very much resembles the effects of heat. Its characteristic effect upon the spinal cord no doubt tones up, so to speak, through the sympathetic nerves, the digestive function, which with the diffused stimulation of the circulatory system must certainly result in a supply of better blood to the nerve-centres, and consequently to promotion of the vital functions.

A curious fact in connection with the action of strychnine is that the weaker the circulation the larger is the amount necessary. Its action seems to be in a way neutralized by the causes inducing the weakness, requiring in some instances rapidly-increasing doses to maintain the effect. Dr. C. B. Penrose informs the writer that he has given hypodermically as much as two grains of the sulphate of strychnine in twenty-four hours, with the result of successfully tiding the patient over a crisis.

This paper is intended as a preliminary to a more complete consideration of the usefulness of strychnine, and in a future article, now in course of preparation, the writer hopes to be able to indicate the extent and class of cases in which it can be effectively employed.

MEDICAL PROGRESS.

Immunity against Tetanus and Diphtheria. — In the *Deutsche medicinische Wochenschrift*, December 4, 1890, DRS. BEHRING and KITASATO publish the results of their experiments on rabbits and mice regarding the production of immunity in them against tetanus and diphtheria. The results regarding the former disease were the most definite.

It was found that immunity is based on a power communicated to the liquor sanguinis, apart from the cells, to make innocuous the toxic substances causing tetanus. The method of imparting this property to the liquor sanguinis is not given, but its future publication is promised.

Not only did the animals treated by the method of the authors prove immune, but the serum of their blood when injected produced immunity in other animals.

If 5 c.cm. of this serum were allowed to remain in contact with 1 c.cm. of tetanus culture for twenty-four hours, a dose of the tetanus virus three hundred times as large as that which is ordinarily fatal could be introduced without causing any harm. It was also found that even during the progress of the disease the new method of treatment favorably influenced its course.

It is to be inferred from the paper that similar, though less definite, results were obtained with diphtheria.

It remains to be seen if these methods can be applied to man.

In the same journal, December 11th, Behring publishes the results of his researches regarding the production of immunity against diphtheria in animals. The experiments have so far led to no practical results, but are interesting to the pathologist and experimental therapeutist.

The author mentions five methods of producing immunity in animals susceptible to the disease. The first four are based on Pasteur's methods, and depend on the action of certain products of tissue-interchange obtained in the cultures or in the living animal organism.

The fifth method is original, and consists in the application of an inorganic substance, which in these experiments was peroxide of hydrogen (H_2O_2). That certain chemical agents have the power to impart immunity in other infectious diseases appears to be established by Kitasato's results in the prevention of tetanus by the previous application of solutions of trichloride of iodine, which are mentioned in the paper.

It is noteworthy that the animals made immune lost their power of resisting the virus after the repeated use and increased doses of the latter.

The facts that certain animals possess an immunity against diphtheria, and that the blood-serum of guinea-pigs which have been made immune has the power to neutralize the toxic properties of diphtheria virus, led the author to the idea that the immunity rested on certain properties of the liquor sanguinis. This theory stood the test made with the tetanus virus as previously described.

Of great importance is the fact mentioned in the second paper, that even if several limbs of a mouse are tetanically convulsed, and death under ordinary circumstances would be expected in a few hours, the experimenters invariably succeeded in curing the tetanus completely in a few days; a fact which shows the possibility of curing very acute cases of the disease.

A Case of Death from the Use of Bromoform in Whooping-cough.—In the *Journal de Chirurgie et de Pharmacologie*, November 20, 1890, NAUWALAERS details a case in which bromoform was given for a cure of whooping-cough with a fatal result. A child aged one year and three months, presenting all the characteristic symptoms of whooping-cough, was ordered 2 drops of bromoform in an alcoholic solution eight times a day. At the end of a week there was no amelioration in the symptoms, and 3 drops eight times a day were ordered, the case being carefully watched. Three days later it was noted that the treatment was still of no avail, and the case persisted for another week without amelioration. Finally 12 drops of bromoform were given. Seven days later the child after receiving its regular dose passed into a state of profound stupor with great pallor, collapse, complete muscular relaxation, shallow respirations, feeble circulation, immobility of the pupils, and insensibility of the cornea. Notwithstanding injections of ether and the employment of artificial respiration, with electrical stimulation of the phrenic nerve and inhalations of nitrite of amyl the patient became much worse, and

finally, owing to the cyanosis which was present and the obstruction to the breathing which seemed to exist near the epiglottis, tracheotomy was performed, when it was noticed that the air which was expired possessed a pronounced odor of bromoform. Amelioration of the symptoms followed the operation, but the muscular relaxation persisted. Later all the early symptoms returned and hypodermic injections of caffeine and hot applications were resorted to. It was noted that the hypodermic injection rapidly produced a local ecchymosis, and shortly after this the child expired.

At the autopsy the pericardium was found to be normal and the pleural cavity free from adhesions. The lungs were of normal color, but contained a large quantity of liquid in the bronchial tubes, which was not purulent. The stomach was reddened, but otherwise apparently normal, but the duodenum was congested. The kidneys and spleen were unaffected. There was a large quantity of red liquid under the dura mater, although the pia mater was normal. The lateral ventricles of the brain were distended. It will be seen, therefore, that the changes produced by tne poison were sufficient to explain the fatal result. The author then details the clinical evidence in favor of the drug, and urges the conclusion that while bromoform is of great value in the treatment of whooping-cough, exercising both a curative and palliative action, it corresponds very closely with chloroform and is dangerous. Finally, that the treatment of poisoning by this drug should consist in the evacuation of the stomach by the use of emetics, in the use of artificial respiration and cardiac stimulants, and, if necessary, tracheotomy with inhalations of oxygen.

Masturbation in an Infant.—At a recent meeting of the Medical Society of London, DR. BEEVOR showed a male infant eleven months old who had been in the habit of masturbating since the age of four months. Erections were produced and at times a glairy mucous was said to exude from the urethra. The child had been circumcised, and bromides had been given, but without effect on the habit. No cause for the condition could be ascertained. There was no stone in the bladder; the urine was alkaline, but contained neither albumin nor phosphates.—*British Medical Journal*, November 29, 1890.

Granular Conjunctivitis.—The following treatment is recommended by TENLON in cases of granular conjunctivitis of a persistent type, with much photophobia. He orders one drop of the following collyrium to be instilled into the eye morning and night:

℞.—Distilled water . . . . ½ ounce.
Neutral sulphate of atropine . 1½ grains.

In the evening he introduces into the eye a very small piece of the following ointment:

℞.—Calomel, pure and thoroughly pulverized . . . . . } 2 drachms.
Vaseline . . . . . 1 drachm.

He also finds it of service during the day to apply fomentations for as long periods as possible, consisting of the decoction of chamomile as hot as can be borne. At the same time it is well to administer internally cod-liver oil, syrup of the iodide of iron, and general tonics.

Treatment of Pneumonia.—In the earliest stage of pneumonia DR. EUGENE GRATZER (*Therapeutische Monatshefte*) prescribes a few large doses—4 grains each to adults—of calomel at intervals of three or four hours, with the best results, the fever being reduced and the disease running a mild course. In cases which are further advanced his favorite remedy is antipyrine given in 4-grain doses three times daily. He also prescribes as an expectorant the following:

℞.—Decoction of senega . . 2½ drachms.
Extract of opium . . 1½ to 4 grains.
Syrup of althea . . . 5 drachms.—M.
Dose, one teaspoonful.

In young children opium and morphine are avoided and cherry-laurel water is given.

During convalescence digestion is stimulated by the following mixture:

℞.—Dilute hydrocyanic acid . 15 minims.
Water . . . . . 4 ounces.
Spirit of nitrous ether . . 1 drachm.
Syrup sufficient to make . 6 ounces.—M.
One tablespoonful every two hours.—*Provincial Medical Journal*, December, 1890.

Myxœdema Treated by Thyroid-grafting.—At a recent meeting of the Medical Society of Paris the notes of a case upon which MR. WALTHER had operated for myxœdema by transplanting the thyroid of an animal were read. The operation was performed on September 3, 1890, the patient being a woman about forty years old. The graft was placed under the right breast and the wound healed by first intention. On September 6th, menorrhagia, which had been very troublesome, ceased. The amelioration in the patient's general condition is no less striking. The puffiness of the face has diminished and the pseudo-lipomatous condition is much less marked. It is in the functional disturbances, however, that the improvement has been greatest. Her speech has become much more clear and she walks more easily.—*Lancet*, November 29, 1890.

An Application for Gout.—The *St. Louis Medical and Surgical Journal* quotes the following:

℞.—Flexible collodion, Ether } of each . 5 parts.
Salicylic acid . . . . 4 "
Muriate of morphine . . . 1 part.—M.
This should be applied to the affected toe.

Arsenic in Phthisis.—LADENDORF employs the following solution of arsenic in hypodermic injections to reduce the fever of phthisical patients:

℞.—Fowler's solution . . . 30 minins.
Distilled water . . . . 2½ drachms.
Hydrochlorate of cocaine . . 1 grain.

Of this half of the contents of an ordinary hypodermic syringe is injected. This injection is to be employed once every third day. It seems probable that this method possesses no advantage over the use of arsenic by the mouth.

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HYPNOTISM AS A CLOAK FOR CRIME.

FOR the first time, we believe, in the history of medical jurisprudence hypnotism has been brought forth as an explanation of and a defence for crime. The Eyraud-Bompard trial, just closed in Paris, has a lasting interest far exceeding that which attaches to its merely sensational and revolting details. Both in its scientific and its judicial aspects the trial was an extraordinary one, and for its scientific features alone will be long remembered and referred to. It will, no doubt, have a permanent influence upon the jurisprudence of insanity and crime, not only in France, but in other countries.

The reasons for this are not altogether simple, and will bear some examination in detail. The first and chief reason, in our opinion, is the fact that a kind of mysticism has hung about this word "hypnotism," not only in lay, but also in medical, parlance. This trial will help to dispel the mysticism. The word, and what it stands for, have not been subjected, even in medical circles, to a strict criticism; while in extra-medical circles, as in the newspapers and in daily conversation, the term has been given a dignity and significance which it by no means deserves, and which make it, and the ritual for which it stands, a ready means for mystification and fraud. It is not to be wondered that the time has come for this convenient ceremonial to be made the excuse for crime, just as it has more than once pandered to vice and defrauded the credulous.

The fundamental fact underlying hypnotism is "suggestion." All else is mere by-play—the mere histrionic tricks or draperies which are meant to add force and efficacy to that one central act. Hypnotism, in other words, is simply the power which one mind has to instill certain dominant ideas or purposes into another mind; hence it is as old as the human race, and has been in operation in one way or another ever since man first tempted man to evil or persuaded him to good. Doubtless in some very "susceptible" persons some unusual psychological effects may be procured. Such persons are usually hysterical, semi-hysterical, or credulous—a class fond of the marvellous, with little ability or wish to rely upon themselves in thought and action, and especially fond of any dramatic scene which includes themselves as conspicuous actors. Hence, it is difficult to judge in some of these cases how sincere the subject is, or how far he or she is merely playing a part. Even the accomplished mind of Harriet Martineau was so weak as to receive suggestions of mesmeric influence, and attributed to this a power that which was simply a revived moral purpose within herself. So the criminal Bompard has sought in vain to attribute to hypnotism her own evil devices. In the hands of the physician who attempts with mirrors, bright objects, and a meaningless rite to impose upon the credulous or the sick the process comes perilously near quackery; and on the witness-stand his testimony must be open to grave suspicion or doubt.

The Eyraud-Bompard trial displayed this quackery to its extreme limits, and exposed it to the gaze and criticism of the world. No one doubts that Bompard received evil suggestions from Eyraud, and that Eyraud received evil suggestions from Bompard. Thus conspiracies and crimes have ever been hatched. But what student of a rational psychology will believe that Eyraud stole the "will" of the luckless Bompard, put her under a "hypnotic spell," in which she led a "dual existence," and so with her wrought out a scheme of murder, concealment, theft, and flight (involving many details of preparation, a trip to London, etc.), in which hypnotic state this Parisian demi-mondaine was unconscious of evil and without blame?

Some features of the trial are noteworthy. The

medical witness who supported the theory of hypnotism was on the stand, so it is reported, four hours, and was allowed by the court the greatest latitude. The presiding judge, however, refused very wisely to permit any hypnotic *séance* to be had with the prisoner in open court. The verdict, in spite of the hypnotic theory, was a just one, and the mercy extended to the female prisoner all that her sex and age could expect.

SPECIAL ARTICLES.

THE PRODUCTION OF IMMUNITY FROM DIPHTHERIA.

BY E. A. VON SCHWEINITZ, PH.D.,
AND
W. M. GRAY, M.D.,
OF WASHINGTON, D. C.

IN view of the interest which is at present being taken in biochemical research, and the impetus which has been given to investigation in this line, we deem it advisable to make a preliminary statement in regard to the work which we have conducted in producing immunity from diphtheria in animals. The disease-germ which we have used is Klein's bacillus, which is probably identical with the Klebs-Löffler bacillus. Without going into details, we may state that we have succeeded in obtaining a chemical substance which renders guinea-pigs treated with it insusceptible to diphtheria upon subsequent introduction of the strong virus into the system, while the control guinea-pigs died in from twenty-four to forty-eight hours.

We further believe that the experiments being made will demonstrate that we have a substance which will serve to control or prevent diphtheria in man. That methods for the treatment of typhoid fever, tetanus, and other contagious diseases can be worked out in a similar way is undoubtedly true, though it may require a long series of experiments to demonstrate this conclusively.

DECEMBER 24, 1890.

BRIEF NOTES ON NINE CASES TREATED BY KOCH'S LYMPH.

BY EDWARD CHARLES WENDT, M.D.,
OF NEW YORK.

SEVEN of these cases are under observation at the St. Joseph's Orphan Asylum and two at the New York Infant Asylum. These notes are necessarily brief, and must be regarded as in the nature of a preliminary communication. The lymph was obtained through the courtesy of Dr. L. Weber, of New York.

SMALL INITIAL DOSES.—Most of the cases being those of young children, the initial dose has generally been only one-quarter of a milligramme—*i. e.*, 0.00025 gramme. It is to be remembered that in using Koch's lymph we are employing a very powerful agent, and that we are still in the experimental stage of clinical investigation regarding its efficacy. It has not been demonstrated that the larger the dose the more powerful the effect for good; while, on the other hand, the possible harm would certainly appear to be in direct proportion to the quantity of lymph injected. The smallest dose that is capable of producing a decided reaction ought to be regarded as sufficient to excite those tissue-changes upon which the curative effect of the lymph is supposed to depend.

These remarks are by no means offered in a spirit of criticism of those who employ the usual 0.001 m. initial dose. They are merely intended to call attention to the possibility of benefiting our patients without incurring the risk of unpleasant disturbances.

TIME AND INTENSITY OF REACTION.—In all undoubted cases of tuberculosis the injection of Koch's lymph was followed by a febrile reaction. But the time of its first appearance, as well as its intensity and duration, was subject to wide variations. The highest temperature thus far recorded has been 104.3° F. Subnormal temperatures have not been observed. Alarming symptoms have not developed, although the malaise and restlessness of some of the children have been very marked. Signs of local irritation of moderate intensity have appeared at the site of inoculation in two cases. The injections have been made into the subcutaneous tissue of the abdomen, back, or thigh, preferably the first-mentioned region.

CASE I. *Strong hereditary predisposition to phthisis.*—Girl, aged eleven years. Parents both died of consumption when comparatively young. Her only sister is now in the last stage of phthisis. This girl is pale and delicate in appearance, chest flat, cervical glands very slightly enlarged, no physical signs relative to lungs, no cough. Small eater.

December 24, 1890, 2 P.M. First inoculation, 0.00025 gramme. No reaction. Temperature normal.

25th. Everything normal.

26th, 11 A.M. Second inoculation, 0.0005 gramme. 2 P.M., temperature 99.2° F.; at midnight, 98.2° F.

27th, 11 A.M. Third inoculation, 0.001 gramme. 2 P.M., temperature 101° F.; 9 P.M., 99.2°F.

28th. Fourth inoculation at noon, 0.001 gramme. Temperature did not rise above 99.3° F.

29th. Fifth inoculation at noon, 0.002 gramme. At 3 P.M., rise in temperature to 100.8° F.

The peculiar interest attaching to this case is due to the fact that our ordinary methods of examination would not permit us to say more than that the girl was likely to have phthisis later on. But if the

occurrence of distinct reaction after the injection of Koch's lymph is really pathognomonic of the presence of tubercle, then this girl is already in the first stage of tuberculosis. And it is precisely in this class of cases that the curative effect of the lymph will probably find its widest sphere of applicability. Until now this girl has developed no cough. In fact, apart from temporary malaise and a decided febrile reaction, the lymph has produced no appreciable effect whatsoever.

CASE II. *Ozæna scrofulosa, and lymphadenitis of neck.*—Girl, aged nine years, strumous. Ulcerating eczema of nose, recurrent phlyctenular keratitis.

December 24. 0.00025 gramme injected: no reaction.

25th. 0.0005 gramme, followed by highest temperature of 98.3° F.

27th. 0.001 gramme, followed by distinct reaction. Temperature 100.3° F.

28th. 0.0015 gramme, followed by rise of temperature to 102.2° F.

29th. Temperature in morning 99° F. Inoculation of 0.002 gramme at noon. At 3 o'clock P.M. the temperature had risen to 100.2° F.

This girl developed considerable cough, although an examination of the lungs before treatment was absolutely negative. The keratitis rapidly disappeared. Around the nose large red blotches appeared, which later resembled the erysipelatous reaction seen in lupus.

CASE III. *Hip-joint disease.* (*Service of Dr. F. Kammerer.*)—Girl, aged three years. Left hip-joint flexed, adducted, and fixed. Limping since one and a half years old. Previous treatment by extension. Abscess opened some time ago.

December 26. First inoculation of 0.00025 gramme at noon. At 2 o'clock P.M. temperature 99.3° F. At 4 o'clock P.M. temperatnre 100° F.

27th. 0.0005 gramme injected. Reaction to 100.3° F.

28th. 0.001 gramme injected. Temperature remained stationary at 100° F. all day.

29th. 0.0015 gramme injected. Temperature rose to 102° F. in three hours. No signs of local reaction at hip-joint up to this day.

CASE IV. *Hip-joint disease.* (*Service of Dr. F. Kammerer.*)—Girl, aged five years, taken ill about one year ago. Gradual development of symptoms. Extension treatment at first successful. Relapse this fall. Has failed of late.

December 26. First inoculation of 0.0005 gramme. Highest reaction, temperature 100.3° F.

27th. Injection of 0.001 gramme. Reaction to 102.2° F.

28th. Injection of 0.001 gramme. Reaction to 102.0° F.

29th. Injection of 0.0015 gramme. Temperature three hours after injection 101.8° F. It should be stated that in this case the temperature did not remit to the normal point, but fluctuated between 99° and 100° F. even during the time when it should have been normal. No local reaction at hip-joint. Movements more painful than at beginning of treatment by inoculation.

CASE V. *Tubercular glands in neck and submaxillary region. Scrofulous affection of eyelids and nose.*—Girl, aged eleven years. Two years ago severe chorea, which yielded to large doses of arsenic (up to 15 drops of Fowler's solution three times daily). Has lost flesh lately. A few suspicious râles at both apices.

December 27. First inoculation of 0.0005 gramme at noon.

Temperature at 2 P.M. 100° F.; at 4 P.M. 101° F.; at 6 P.M. 102° F.; at 9 P.M. 103.2° F.

28th. Second inoculation at 1.30 P.M. of 0.00075 gramme. Temperature was 101° F. in the morning (*i. e.*, incomplete recovery from reaction). At the time of this injection it was said to be normal, although I did not verify it.

Temperature at 3 P.M. 102° F.; at 5 P.M. 103° F.; at 7 P.M. 103.3° F.; at 9 P.M. 104.2° F.; at 12 P.M. 104.3° F.

Scarlatinoid rash all over body developed after second injection. Glands in the neck not larger than before treatment, and not painful. Feels sleepy and dull.

29th. Temperature at 9 A.M. 101.2° F.; at 12 noon 101° F. No inoculation to-day.

CASE VI. *Incipient phthisis.*—Girl, aged sixteen years. Mother died of consumption. Has been liable to "colds" for years. Supraclavicular spaces sunken in, chest flat. No emaciation. Slight cough. General condition fairly good.

December 27. First inoculation of 0.0005 gramme. Slight reaction to 99.3° F.

28th. Temperature normal at 8 A.M. Second inoculation at noon, 0 001 gramme.

By 9 P.M. temperature had risen to 101.3° F.

Scarlatinoid rash over body.

29th, A.M. Temperature normal. Injection 11 A.M. of 0.002 gramme.

Temperature at 3 P.M. 102° F. Has developed much cough and expectoration.

CASE VII. *Scrofula.*—Girl, aged five years. About one year ago convulsions and signs of meningitis. As she recovered it was held to be simple meningitis, although the symptoms were those of the tubercular variety. Also had pneumonia in 1889.

At present is pale and delicate in appearance. Glands at neck enlarged. A few râles (bronchitic) on left side of chest.

December 28. First inoculation of 0.00025 gramme. No reaction.

29th. Second injection of 0.0005 gramme. Reaction to 100.8° F.

The two remaining cases are under observation in my service at the New York Infant Asylum.

CASE VIII. *Tubercular (?) lymphadenitis of neck.*—Infant, aged nineteen months. In the latter part of November, 1890, Dr. Townsend removed some broken-down glands from right side of neck. Thick, bulging cicatrix. Some glands still enlarged. Healthy-looking, plump baby.

First inoculation, December 24th, 2.30 P.M.,

0.00025 gramme. No reaction, except slight rise of temperature following day to 100.4° F.

Second inoculation, December 26th, 0.0005 gramme. Temperature rose to 100.6° F.

Third inoculation, December 29th, 0.001 gramme. (Record not complete.)

CASE IX. *Incomplete resolution after pneumonia.*—Colored woman, aged twenty-three years. Condition previous to admission "delicate." Family history unknown. About the middle of October, 1890, she had an attack of pneumonia, from which she has not recovered. Temperature during height of attack not above 103° F. Signs of consolidation persisted, even after fever subsided. Cough, with expectoration, occasional night-sweats, and deterioration of general health were observed. During the month of December her temperature became almost normal, no hectic. Two weeks before first inoculation highest temperature was 99.5° F.

First inoculation, December 24th, 2.15 P.M., 0.00025 gramme, temperature normal at time. Slight reaction to 99.6°, but subjective symptoms more marked.

25th. Slept poorly night before. Anorexia, nausea, malaise, pain in head and joints. Coughs much more than before injection. Later she vomited twice. Temperature that afternoon (*i. e.*, twenty-four hours after first inoculation of one-fourth milligramme), 101.2° F.

26th, A.M. Feels much better after a good night. Second inoculation of 0.0005 gramme, followed by milder reaction. Temperature 100.6° F. Considerable cough. By December 29th temperature back to normal. On that day third inoculation of 0.001 gramme. The area of chest-dulness is larger, but auscultation shows no appreciable change.

This case seems interesting on account of the race of the woman. So far as I know, the lymph has not hitherto been tried on colored people, and the decided reaction obtained after a minute dose, may give a hint as to caution in using it in negroes.

It was noticeable, also, in this case, that the defervescence of the febrile reaction was more gradual than would appear to be the rule.

712 MADISON AVENUE, December 29, 1890.

REVIEWS.

A COMPEND OF HUMAN ANATOMY, INCLUDING THE ANATOMY OF THE VISCERA. By SAMUEL O. L. POTTER, M.D. Fifth edition. Revised and enlarged. Philadelphia: P. Blakiston, Son & Co., 1890.

THE appearance of the fifth edition of Dr. Potter's book upon anatomy proves not only that he is a successful teacher, but also that this is another one of his works which does him credit and gladdens the heart of his publisher. Though it is marred by a rather lengthy and unnecessarily eloquent dedication, the style of the rest of the book is so clear as to permit of no misunderstanding on the part of the student, and there is no reason to doubt that the fifth edition will become even more popular than the previous issues.

RHEUMATISM AND GOUT. By F. LEROY SATTERLEE M.D., Ph.D. 12mo., pp. 83. Detroit: George S. Davis, 1890.

THE author of this brief essay writes with an earnestness born of personal experience. As he tells us in his preface, he was a martyr to the gouty and rheumatic diatheses, which he was able to overcome by the hygienic and therapeutic measures he here describes. There is, however, little that is original in his methods, and the book can be regarded only as a readable description of common-sense methods of treating two troublesome diseases.

ESSENTIALS OF DISEASES OF CHILDREN. By WILLIAM M. POWELL, M.D. Saunders' Question Compends No. 15. 12mo., pp. 222. Philadelphia: W. B. Saunders, 1890.

THIS book is arranged like the others of the series to which it belongs, and probably contains as much information upon the diseases of children as could be compressed in a book of this size. It is clearly written and has evidently been carefully prepared, and will doubtless prove useful to those whose want of time or of inclination prevents them from referring to larger works.

THE PHYSICIAN'S VISITING LIST FOR 1891. Philadelphia: P. Blakiston, Son, & Co.

THE fact that this visiting list has been published annually for forty years is sufficient guarantee of its excellence and popularity. In addition to the visiting list proper, it contains easily-accessible suggestions upon many of the emergencies that may arise in a physician's practice, and when he is too far from home to learn from his text-books the antidote for a poison that may have been swallowed, or the proper method of resuscitating a half-drowned person. True, he should know these things, but who does not occasionally forget, when he most wishes to remember? There are also dose-tables, tables of the metric system, a list of new remedies for 1890, rules for examining urine, a table for calculating the period of pregnancy, and other equally useful information. The arrangement for entering patients, visits, consultations, etc., is exceedingly simple, and the whole makes a thin, compact, and easily-carried volume.

CYCLOPÆDIA OF THE DISEASES OF CHILDREN, MEDICAL AND SURGICAL. BY AMERICAN, BRITISH, AND CANADIAN AUTHORS. Edited by JOHN M. KEATING, M.D. Vol. IV. 8vo., pp. 1128. Philadelphia: J. B. Lippincott Company, 1890.

THE concluding volume of this already well-known work is devoted to diseases of the ear, eye, and nervous system, and to hygiene. It opens with an article of forty-nine pages by Dr. Charles H. Burnett on Diseases of the Ear in Children. A brief description of the anatomy and pathology of the ear is given, but the larger part of the article relates to diagnosis and treatment. The succeeding article, Affections of the Eyelids, Lachrymal Apparatus, Conjunctiva and Cornea, by Dr. G. E. de Schweinitz, will prove a most useful one to the general practitioner who is compelled to treat these diseases. The same may be said of the article on Diseases of the Eye, by Drs. Charles S. Turnbull and George M. Gould, and of that on Ophthalmoscopy; Local Diseases

and Functional Disorders of the Choroid, Optic Nerve, and Retina, by Dr. Charles A. Oliver. An interesting article of eighty-four pages on Physical Development is contributed to the section on Hygiene, under the joint anthorship of the Editor of the *Cyclopædia* and Dr. James K. Young. Full descriptions of the proper methods of developing the muscular system of children are given, and the paper is illustrated by a number of reproductions of instantaneous photographs of children and adults showing the mechanism of walking, running, etc. Another useful paper in this section is that on School Hygiene, by Dr. D. F. Lincoln. The article on the Construction of Children's Hospitals, by Dr. Lindley Johnson, seems almost unnecessary in a work of this kind, and, moreover, it is the most carelessly written article, so far as diction is concerned, in the four volumes. We are not sufficiently familiar with carpentry, masonry, and architecture to judge the correctness of the author's opinions. The two following articles, Juvenile Crime and Public Methods of Prevention and Reclamation, by J. Percy Keating, Esq., and Medico-legal Testimony, by Dr. Jerome Walker, are interesting and exceedingly instructive. Diseases of the Nervous System occupy more than one-half of the volume and include twenty-eight papers of more than ordinary merit; indeed, it is safe to say that no department of the entire *Cyclopædia* is more uniformly excellent. Among others there are articles on the Diagnosis of Diseases of the Nervous System, by Dr. Allan McLane Hamilton; Cerebral Palsies and Suppurative Meningitis, by Dr. Landon Carter Gray; Tubercular Meningitis, by Dr. A. Jacobi; Intra-cranial Tumors, by Dr. M. Allen Starr; Hereditary Ataxia and Locomotor Ataxia, by Dr. Charles L. Dana; Headache, by Dr. E. C. Seguin; and Insanity, by Dr. E. C. Spitzka.

We congratulate Dr. Keating and his publishers upon the successful completion of a work that no practitioner can afford to be without.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting of November 23, 1890.

DR. G. M. EDEBOHLS read a paper entitled

EXPLORATORY PUNCTURE OF THE FEMALE PELVIC ORGANS,

dealing with the differential diagnosis of slight enlargements, or "masses," which are situated either entirely within the pelvis, or which originate there and project but slightly above the brim of the true pelvis, and are recognizable only by combined abdominal and vaginal touch. As an aid in the differential diagnosis of such tumors, the author has systematically practised, for two years, a method of exploratory puncture of the female pelvic organs which he terms "abdominal puncture guided by combined vaginal and rectal touch." The method is practised as follows: The skin of the lower part of the abdomen is carefully disinfected. The middle finger of the left hand is passed into the rectum, and the index finger of the same hand into the vagina. With these fingers the ovary, tube, small tumor or mass is located. The finger in the rectum, if possible, reaches posteriorly to the upper limits of the mass, the finger in the vagina being applied to the lower limits. A point on the anterior abdominal wall directly over the centre of the mass is located by the carefully-disinfected fingers of the right hand. At this point a sterilized hollow needle is carried perpendicularly through the abdominal wall and the intervening tissues and organs into the centre of the mass. The fingers in the vagina and rectum fix the diseased structures, control the course of the needle, and guide it into that part of the mass which it is desired to puncture. An assistant draws the piston, while the operator's right hand firmly grasps the barrel of the syringe, thus steadying it and the needle.

The author has practised the method in more than seventy cases without having had the least untoward or disagreeable result. The important points of the procedure are (1) perfect asepsis, (2) immobility of the syringe and needle, (3) resistance of the temptation to bore about in the tissues with the needle.

The paper was discussed by Drs. A. F. Currier, A. H. Buckmaster, C. T. Jewett, A. P. Dudley, H. J. Boldt, H. C. Coe, and R. A. Murray. The consensus of opinion was against the operation. It was conceded that the method was certainly an ingenious one, and that it had apparently given good results in the hands of its originator. It was questioned whether there is any need of a diagnostic procedure which exposes a patient to the dangers of puncture of the intestines and peritoneum, with consequent peritonitis, and probably death, when the present good results are obtained by the much more satisfactory method of incision, if a diagnosis cannot be made without an operation of some kind.

DR. J. C. EDGAR made some remarks on

THE MANIKIN IN THE TEACHING OF PRACTICAL OBSTETRICS,

and exhibited a manikin and a number of appliances which are used by himself in teaching his class in obstetrics. The chief points made by the speaker were: (1) that, as a rule, it is a difficult matter to procure sufficient material, in the shape of puerperal women, for the education of the medical student; (2) that even if this were possible, the student could not study the mechanism of labor, and could have no guide in the application of the forceps, or the performance of any other operation in the pelvis; (3) that if students had thorough manikin training, with the fœtal cadaver, they would leave college equal to any emergency that might arise in the puerperal chamber.

DR. FLORIAN KRUG described the operation of

TRANS-PERITONEAL HYSTERORRHAPHY,

a new method of ventro-fixation of the uterus without opening the abdominal cavity. The method is only applicable to the cases of obstinate, movable retro-displacements which have resisted every other form of treatment. The patient is placed in Trendelenburg's position, having been previously prepared for the operation with the same care as for abdominal section. A sound is introduced into the uterine cavity, while a tenaculum holds the anterior lip of the cervix, and a catheter is placed in the bladder. The assistant who is

trusted with these instruments now brings the uterus forward against the abdominal wall, no force being used. After selecting a suitable place to "ventro-fixate" the uterus, a very small incision is made in the linea alba. When the peritoneum is exposed, the finger is introduced into the wound and comes at once upon the fundus of the uterus. The assistant now indicates the position of the bladder and uterus by alternately moving the catheter and sound, and a needle, especially made for the purpose, is passed through the abdominal walls. After the needle has entered the abdominal cavity, it can easily be felt between the uterus and the peritoneum. The cutting edge on the back of the needle is now used to denude about one square inch on the anterior surface of the uterus, and the needle is then passed through the body of the uterus, and brought out at a place corresponding with the point of entrance. It is then threaded with a strand of silkworm-gut and withdrawn, bringing the end of the suture with it. The two strands are now tied, and are generally sufficient to close up the entire wound. As a rule, the operation does not require more than from five to eight minutes. The patient is kept in bed for from ten to fourteen days. The ligatures are allowed to remain for between four and six weeks, when on removal the uterus is found firmly adherent to the anterior wall in a normally anteflexed position. The operator's experience with this method is limited to six cases, all of which have done well, and the results so far are good.

CORRESPONDENCE.

BERLIN.

Observations on the Use of Koch's Lymph in the Berlin Hospitals.

SIR: The following are some points in reference to the use of Koch's fluid for the treatment of tuberculosis that I have gathered at the bedside in Berlin hospitals:

The remedy is dangerous, and must be exhibited with exceeding care in every case. It seems powerful for good; it is as potent for evil. The initial dose should usually range from one-half to one milligramme. Lupus-cases bear larger doses.

The repetition of the dose should depend not only upon the amount of reaction, but also upon the general condition of the vital powers during the next twenty-four hours. If there is extensive tubercular laryngitis be ready for a laryngotomy or tracheotomy. In such a case it is a small dose in mind and your instruments in sight. If there is diarrhœa, or if there is any disturbance of the general system, trivial, perhaps, at other time, be still more careful. After two or three days repeat the dose; if there is no reaction increase by one milligramme every second or third day, or even at longer intervals, as the case may require; and so on, being, of course, guided by the revelations of the microscope. Daily examination of the sputum is a *sine qua non* as a guide.

The cases should be selected and under control either in an institution or, in private practice, with a trained nurse at hand. The pulse, respiration, and temperature should be taken frequently and recorded, and the cases seen by the physician at least twice a day. Confinement to the bed does not seem necessary, but quiet should certainly be enjoined in the earlier period of treatment. The usual supporting diet should be continued, and the functions of the heart and kidneys looked after as well as the lungs. It is said that heart-failure has occurred after the administration of the remedy, that the lungs have become œdematous, and the urine bloody in some cases. Several laryngotomies have been done here recently and have successfully bridged over that dangerous period of reaction during which the tuberculous tissue is attacked and becomes swollen, preliminary to being thrown off. Cases with extensive destruction of lung tissue and much prostrated, with our present knowledge of the remedy, are better without this treatment, though much must depend upon the wisdom and discrimination of the physician in gauging the vital resistance.

The reaction, which includes all the phenomena of the twenty-four hours following the elevation in temperature, begins from four to six or even twelve hours after the injection. It does not always occur even when bacilli have been found, and again it does occur and sometimes violently in suspected cases in which no bacilli have been discovered; but time and further investigation must clear up many things that now obscure the beginning. What has already been discovered is wonderful enough. To see a bedridden lupus patient after a few short weeks of treatment walk is astonishing.

The fever ranges from one to five degrees above the normal, and lasts several hours, just as occurs in the usual daily exacerbation in tuberculosis, accentuated perhaps. Query: Is it wise to disturb a dormant tuberculosis by treatment? At present I would say "Let well enough alone." If at any time bacilli show themselves, and there is fever, treatment would appear to be proper. But as all the early symptoms are apt to be uglier in the beginning, cases that appear to have been made worse may after a time be greatly improved by carefully pursuing the treatment.

It would seem quite possible—even probable, that cavities are formed by the diseased tissue being thrown off through the action of the lymph, and that a good cicatrix under ordinary circumstances would result.

"Lymphomania" rages in Berlin; it affects many of the laity and nearly all the medical men, only Drs. Koch and Libbertz enjoying an immunity, so far as can be learned. What is the lymph? It has been suggested that it is a substance resulting from the destruction of the bacillus tuberculosis, held in glycerin and colored by cyanide of gold. It is stated that the German Government will soon control the fluid, or the distribution thereof.

The following seems to be a good method of preparing it for use, especially where a number of patients are undergoing treatment at the same time: Procure a Pravaz hypodermic syringe, which should hold just one cubic centimetre, also two 10-cubic centimetre graduates. Place one cubic centimetre of the lymph (22 drops) in one of the graduates, and add sterilized or carbolized water (½ per cent. solution) to ten cubic centimetres; then of this solution put one cubic centimetre in the other graduate, and add sterilized water or carbolized water to make 10 cubic centimetres. We now have a one-per-cent. solution. One-tenth of the Pravaz syringeful of this solution (the piston is divided into tenths) represents just one milligramme of the original

fluid—the usual dose. The diluted solutions should be boiled each day, *i. e.*, just brought to the boiling-point. This seems a very simple matter, but much confusion and danger arise from careless manipulation. In every minim of the lymph there are about sixty-four doses.

Dr. Koch surely deserves all the honors that are heaped upon him. The remedy stands preëminently as one of the greatest discoveries of the age. Verily, "we of the present stand as heirs of all ages in the foremost files of time."

BERLIN, December 14, 1890.

CRANIECTOMY FOR MICROCEPHALUS.

To the Editor of THE MEDICAL NEWS,

SIR: In the issue of your journal of November 29, 1890, Professor W. W. Keen reported a case of craniectomy for microcephalus, the third on record, and mentions in detail the two operations done by Lannelongue, of Paris, on May 9th and June 20th of this year.[1]

Dr. Keen naturally supposes his the first operation of the kind done in America, no other being reported; but I desire now to put on record the following case upon which I operated on November 8, 1890, some days before Dr. Keen.

The history of my case is as follows: Albert Ginter, white, aged three years, one of twins, born at term (the other child being stillborn), the youngest child of healthy parents. He has two brothers and two sisters, all well and strong, and without hereditary tendency to insanity or other troubles. The child has never walked nor even attempted to crawl, and cannot raise the body from a horizontal to a sitting position nor remain sitting without support. He has an ugly temper, crying incessantly without apparent cause and tossing his head from side to side, with the arms and legs in constant motion. The child never sleeps for a longer period than two hours. He cannot speak, but recognizes familiar faces, being afraid of strangers. There are constant salivation and an abnormal appetite, the child eating almost anything given it. There is no muscular paralysis, although the head is carried somewhat toward the right side and the right extremities are used in preference to the left. Weight, 28 pounds; height, 33 inches. His general health is good, he is well-nourished, and has had no serious illness. Hearing good. As to his vision, my friend, Dr. Hiram Woods, reports: "I find the following condition of things: Normal external appearances, pupils of medium size, readily responding to daylight and to reflected gas-light. The media of the eyes are perfectly clear, the fundus normal, the optic papilla showing a physiological central excavation. Each eye is hypermetropic in shape."

Head measurements: from occipital protuberance to glabella, 8½ inches; from one external meatus to the other, 9 inches; circumference of the head, 18 inches.

I carefully considered the case, and secured the consent of the parents to operate, having offered them the possibility of some improvement. On November 8, 1890, an incision three inches in length was made through the scalp parallel to, and one-fourth of an inch from, the sagittal suture, beginning at the occipital bone.

To expose the skull better, a transverse incision was then made, and the flaps pinned back. The skull being symmetrical, I chose the right side of the middle line for operation, because the muscles of the left side of the body were less used. The first button of bone was removed from a point one-half inch to the right of the sagittal suture and one-fourth inch anterior to the occipital bone. A second button of bone was removed two inches from the first, and at the same distance from the sagittal suture. The intervening bone was removed by rongeur forceps. The opening in the skull when finished measured two and one-half inches long by one inch wide. The dura was normal. Bleeding was arrested, and the flaps were brought in apposition by interrupted silk sutures. The head was dressed and child put to bed. On the fifth day the dressing was removed and the stitches were taken out. The wound had healed by first intention. The child had at no time a rise in temperature.

On December 6th the child presented the following condition: Temper better, sleeps well, and cries less. Takes interest in things around him. When laid upon his back will raise his body on his elbows. Tries to pull up with his hands. Sits in a baby's chair at the table, which he never did before. Has learned to say "papa." When told to play "peep-a-boo," carries his hand to his eyes. When asked for any member of the family, looks around the room until he sees them.

There is evidently some improvement in his mental condition. Time only can determine the extent. Perhaps a future operation on the other side of the skull may be done if it is considered necessary.

I. R. TRIMBLE, M.D.

214 W. FRANKLIN ST., BALTIMORE, MD.

[1] L'Union Médicale, July 8, 1890.

SULPHATE OF MAGNESIUM IN THE TREATMENT OF PERITONITIS.

A Bit of Ancient History.

To the Editor of THE MEDICAL NEWS,

SIR: Within the past ten years quite a change has taken place in the treatment of peritonitis, especially with reference to peritonitis arising from surgical operations within the abdominal cavity.

Previous to this present decade opium, blisters and leeches were the mainstays in the treatment of peritonitis, regardless of its cause. But when antiseptic surgery made it justifiable to open the abdominal cavity, and therein determine the origin of diseases that had previously been obscure, a new light was shed upon the whole subject, and from it a new version of many of the affections of this portion of the body has arisen to take the place of much that was unsatisfactory and obscure in former times.

One of the salient features of this new version is the use of sulphate of magnesium in the treatment of peritonitis that may be present either before or after the opening of the abdominal cavity. The impression among most medical men is that Tait originated this method of treatment, and that to him and to his followers who had the pluck to deviate from the beaten track of "splinting the bowels" with opium, belongs the credit of this improved method of treatment. That the method is a decided improvement upon the opium plan in cases

of traumatic peritonitis, whether of external or internal origin, no one who has ever tried it will doubt, and to Tait and his followers much credit is due for their persistent and frequently vehement advocacy of it. But the point is that the method did not originate with them. It was used in the beginning of this century by John Abernethy in exactly such cases as are now deemed best fitted for it, and is probably of much older usage, for it is mentioned by Abernethy as if it were a customary procedure. In *Surgical Observations*, by John Abernethy, 5th edition, London, 1820, p. 5, is cited a case of adherent omental hernia that was operated upon. "The operation was followed by general disorder of the system, manifested by a full, strong pulse, furred tongue, great anxiety, restlessness. . . . The stomach was particularly affected, being distended, uneasy on compression. . . . In the course of the day he took an ounce of the salts (Epsom)." Calomel, senna, colocynth, and aloes were afterward administered before satisfactory evacuations of the bowels took place. In commenting upon this and similar cases, Abernethy claims that disorder of the chylopoietic organs was the cause of the trouble. He says, also: "With respect to the treatment of cases of this description it may be right to add, that the primary object should be to produce secretions from the irritable organs. In many instances *opium* will not prevent continual efforts to vomit, yet when by *sulphate of magnesium* or purgatives administered in the form of pill, and clysters, stools are procured, the vomiting ceases, the stomach retains both food and medicine, and general tranquillity of constitution is as suddenly restored."

When we consider the state of medical knowledge as it was in the beginning of this century, this case becomes a remarkable bit of clinical record, showing the skill of a wise physician and surgeon, who pursued right methods without the guidance of physiology and pathology as we have them to-day. It must be remembered that peritonitis as a distinctive disease was then hardly known, Bichat having recognized and proved it as such but a few years before.

John Abernethy was a remarkable man, and was in several ways one of the many who helped make the present medical and surgical advance possible.

CHARLES M. SELTZER, M.D.
608 N. SEVENTEENTH ST., PHILADELPHIA.

"AN EFFICIENT METHOD OF REMOVING FOREIGN BODIES FROM THE NOSE."

To the Editor of THE MEDICAL NEWS,

SIR: While reading the issue of your journal of December 6th, I came across an item which peculiarly interested me; it is headed "An Efficient Method of Removing Foreign Bodies from the Nose," and is credited to an article by Dr. S. J. Taylor, in the *London Lancet* of November 8th. Dr. Taylor says he got his idea from a communication in the *Lancet* of November 3, 1888, the name of the author of which he could not recall. That communication was my own. I sent it to the *Lancet* while living in Würzburg, Germany.

The idea of the principle occurred to me several years ago and I have had repeated occasions to test its efficacy, so I know the method is an excellent one, being both safe and simple. In Vienna I told one or two of the well-known specialists there of the method and they assured me it was entirely new and original. For natural reasons, therefore, I feel desirous of preserving my claim to its authorship. Very truly yours,

CHARLES W. DODD, M.D.
84 W. EIGHTH ST., CINCINNATI, O., Dec 15, 1890

NEWS ITEMS.

Koch's Lymph in Canada.—A small supply of Koch's lymph having been obtained by Professor Roddick, six patients, with presumably extra-pulmonary tuberculosis, are under treatment in the Montreal General Hospital. The first injection was made on December 19th. So far the usual rise of temperature has been observed, and an increase of albumin in a case of kidney disease. In the case of a girl of fifteen years old, with lupus of the face, local changes are manifest after five injections. Full notes of the cases are taken by Dr. James Bell and the hospital staff.

The Reduced Subscription Price of the "Medical News."—The publishers of THE MEDICAL NEWS desire particularly to call the attention of subscribers to the fact that their remittance should be for ***$4.00*** and not for ***$5.00***, and thereby avoid the trouble attending the return of the extra dollar.

A Lifetime Subscriber.—Very rarely is it possible to record the unswerving fidelity of a lifetime between reader and magazine as is shown between Dr. John D. Ross, of Williamsburg, Pa., and the *American Journal of the Medical Sciences* and THE MEDICAL NEWS. In renewing his subscription, Dr. Ross writes that though a continuous subscriber since 1835, he has never missed a number, and gracefully adds a tribute to the punctuality evinced by both the publishers and the post-office.

In Memory of Richard J Levis.—At a meeting of the Faculty of the Philadelphia Polyclinic and College for Graduates in Medicine the following preamble and resolutions were unanimously adopted:

WHEREAS, The Divine Ruler of the universe has seen fit to remove from among us Dr. Richard J. Levis, our friend and colleague; therefore, be it

Resolved, That in the Emeritus Professor of Surgery of the Philadelphia Polyclinic, not only we but the whole medical profession have lost an honored and faithful co-laborer; and the community have cause to mourn a skilful and learned physician, an honest and sympathizing friend.

Resolved, That by his kindness of manner, by the thoughtful interest which he always manifested in the younger members of the profession, by his encouragement, his earnestness, and his example, he endeared himself to all, and that we fitly honor and cherish his memory. We must emulate his zeal, and vie with each other in carrying forward the great work in which he was so ardently engaged.

Resolved, That we tender to his family in this sad hour of affliction our heartfelt sympathy.

Resolved, That these resolutions be handed to the family of our beloved colleague and to the medical journals. THOMAS J. MAYS, M.D., *President*,
S. SOLIS COHEN, M.D., *Secretary*.

Succi the Faster.—For the last forty-five days an Italian by the name of Succi has been fasting in New York in an exhibition hall. During that time he has lost over forty pounds. The newspaper reports state that his physical condition is very good and his mental condition bright and clear. For the purpose of avoiding the pangs of hunger he daily took an elixir made up chiefly of chloroform and cannabis indica, and his physical condition is very much better than was that of Dr. Tanner. He used during his fast large quantities of water and smoked cigars and cigarettes freely.

The Necessity of Quarantine Against Cholera.—Dr. J. H. Rauch, Secretary of the Illinois State Board of Health, predicts that unless proper quarantine regulations are adopted there will be a serious cholera epidemic in this country next spring. He points out that 10,000 people have fallen victims to cholera in Abyssinia within the last six months; that Spain is infected; that cholera is epidemic in India, and that 80,000 people have perished from the disease in Japan and Corea and the adjacent Asiatic provinces of Russia within a short time. He emphasizes the necessity of protection against the scourge on the Pacific coast.

"Cholera," he says, "has thrice followed the same route from Bekor to Alexandrietta and through the Levant before the Suez canal was constructed. This time the epidemic is being aided by the improved methods of transportation and that monument of pestilence, the yearly pilgrimage of Moslems to Mecca. Thousands upon thousands of these filthy, ignorant Mussulmans congregate at Mecca and spread death and disease. They carry infection into Syria, Turkey, Southeastern Austria and the provinces of Northern Africa. Cholera is there now and its spread will soon be augmented by the Mecca crowd."

Edinburgh Medical Missionary Society.—The November number of the *Journal of the Edinburgh Medical Society* celebrates the fiftieth anniversary of its existence. When the Society was formed the idea of associating medicine with missionary effort "was sneered at by many and scouted by all but a few," whereas now no mission is considered properly equipped, or on an efficient working basis, if it has no medical members. About one hundred and forty such physicians, with British diplomas, are to-day in foreign lands, and, including those from the United States and Canada, there cannot be fewer than three hundred medical workers in heathen and Mohammedan countries, of whom probably fifty are women. Women are especially welcome in the neglected zenanas of India and other parts of the Orient.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 9 TO DECEMBER 29, 1890.

By direction of the Secretary of War, MARCUS E. TAYLOR, *Captain and Assistant Surgeon*, is relieved from further duty at Boise Barracks, Idaho, and will proceed, at the expiration of his present sick-leave of absence, to Vancouver Barracks, Washington, and report in person to the commanding officer of that post for duty, reporting also by letter to the commanding general Department of the Columbia.—Par. 17, *S. O. 287, A. G. O., Washington*, December 9, 1890.

By direction of the Secretary of War, CHARLES M. GANDY, *Captain and Assistant Surgeon*, now on leave of absence, will report in person, without delay, to Colonel Eugene A. Carr, Sixth Cavalry, at Rapid City, South Dakota, for duty with troops in the field, reporting also by letter to the commanding general Department of Dakota.—Par. 14, *S. O. 287, A. G. O., Washington*, December 9, 1890.

RAYMOND, THOMAS U., *First Lieutenant and Assistant Surgeon.*—Having been ordered to temporary duty at Vancouver Barracks, Washington, by the commanding general Department of the Columbia, is assigned to duty at that post, and relieved from further duty at Fort Sherman, Idaho.—*S. O. 294, A. G. O., Washington, D. C.*, December 17, 1890.

Par. 17, of Special Orders No. 287, December 9, from this office, relating to MARCUS E. TAYLOR, *Captain and Assistant Surgeon*, is so amended as to direct him to report to the commanding officer Vancouver Barracks, Washington, for duty as Post Surgeon, relieving Bernard D. Irwin, Colonel and Surgeon, of that duty. Rudolph G. Ebert, Captain and Assistant Surgeon, will be relieved from duty at Vancouver Barracks, Washington, upon the arrival of Captain Taylor, and will then proceed to Fort Huachuca, Arizona Territory, and report in person to the commanding officer of that post for duty.—*S. O. 294, A. G. O., Washington, D. C.*, December 17, 1890.

By direction of the Secretary of War, the extension of leave of absence granted STEVENS G. COWDREY, *Major and Surgeon*, in Special Orders, No. 263, November 10, 1890, from this office, is further extended ten days, on account of sickness.—Par. 4, *S. O. 293, A. G. O.*, December 16, 1890.

By direction of the Secretary of War, FRANCIS J. IVES, *Captain and Assistant Surgeon*, now on leave of absence, will proceed to Rapid City, South Dakota, and report in person to Colonel Eugene A. Carr, Sixth Cavalry, for duty with troops in the field, relieving William B. Banister, First Lieutenant and Assistant Surgeon, and reporting also by letter to the commanding general Department of Dakota.—Par. 18, *S. O. 289, A. G. O., Washington, D. C.*, December 11, 1890.

STEPHENSON, WILLIAM, *Captain and Assistant Surgeon.*—Is granted leave of absence for fourteen days, to take effect on or about December 20, 1890.—Par. 18, *S. O. 291, A. G. O., Washington, D. C.*, December 13, 1890.

By direction of the Secretary of War, WALTER REED, *Captain and Assistant Surgeon*. now on duty at Baltimore, Md., will report in person, without delay, to the commanding officer Fort Keogh, Montana, for temporary duty at that station, and by letter to the commanding general Department of Dakota.—*S. O. 291, Headquarters of the Army, A. G. O., Washington*, December 13, 1890.

By direction of the Secretary of War, WILLIAM O. OWEN, JR., *Captain and Assistant Surgeon*, now on leave of absence, will report in person, without delay, to Colonel Eugene A. Carr, Sixth Cavalry, at Rapid City, South Dakota, for duty with troops in the field, and by letter to the commanding general Department of Dakota.—Par. 17, *S. O. 291, A. G. O., Washington, D. C.*, December 13, 1890.

By direction of the Secretary of War, CHARLES SMART, *Major and Surgeon*, is detailed as a delegate to represent the Medical Department of the Army at the annual meeting of the American Public Health Association, to be held at Charleston, S. C., December 16 to 19, 1890. He will proceed to Charleston, accordingly, and, upon the final adjournment of the Association, return to his station in this city.—Par. 2, *S. O. 290, A. G. O., Washington. D. C.*, December 12, 1890.

By direction of the Secretary of War, ROBERT J. GIBSON, *Captain and Assistant Surgeon*, now on leave of absence, will report in person, without delay, to the commanding officer Fort Meade, South Dakota, for duty with the Seventeenth Infantry in the field, reporting by letter to the commanding general Department of Dakota.—Par. 6, *S. O. 297, A. G. O., Washington, D. C.*, December 20, 1890.

By direction of the Secretary of War, the leave of absence granted FREEMAN V. WALKER, *First Lieutenant and Assistant Surgeon*, in S. O. 85, Department of the Platte, November 11, 1890, is extended one month.—Par. 9, *S. O. 298, A. G. O.*, December 22, 1890.

By direction of the Secretary of War, leave of absence for six months, on surgeon's certificate of disability, with permission to leave the Department of Texas, is granted JOHN J. COCHRAN, *Captain and Assistant Surgeon.*—Par. 2, *S. O. 298, A. G. O.*, December 22, 1890.

By direction of the Secretary of War, WILLIAM J. WAKEMAN, *Captain and Assistant Surgeon*, is relieved from further operation of Par. 13, S. O. 254, A. G. O., October 30, 1890, and telegraphic instructions of the 16th instant, from this office, transferring him from Fort Bidwell, California, to Fort Huachuca, Arizona Territory, and he will return from Reno, Nevada, to Fort Bidwell, for further duty at the latter post.—Par. 3, *S. O. 300, A. G. O.*, December 24, 1890.